TRURO PLANNING BOARD AGENDA
TUESDAY, March 15, 2016 – 6:00 pm (REVISED)
Truro Town Hall, 24 Town Hall Road, Truro

Public Comment Period:

The Commonwealth's Open Meeting Law limits any discussion by members of the Board of an issue raised to whether that issue should be placed on a future agenda.

Public Hearing

Public hearing on proposed modifications to three sections of the Town of Truro Zoning Bylaws related to the creation of accessory dwelling units. The proposed modifications include changes to *§40.2 Affordable Accessory Dwelling Units*, to make the provision "by right", remove affordability requirements unless the property is seeking property tax relief under MGL c. 59; and add design requirements. Other related changes to the bylaw are proposed for *§10.4 Definitions* and for *§30.2 Use Table* to make those sections consistent with proposed modifications to §40.2.

Special Permit

2016-002PB Cellco Partnership d/b/a Verizon Wireless seeks a Special Permit pursuant to Section 40.5 (Communication Structures, Buildings, Appurtenances) of the Town of Truro Zoning Bylaw to allow for the replacement and collocation of wireless communications transmissions equipment on an existing tower located behind the Public Safety Facility. The property is located at 344 Route 6, Map 39, Parcel 172.

Waiver of Site Plan Review, Continuance

2016-002SPR Dorchester Awning c/o Thomas Cebula seeks a waiver of Site Plan Review for installation of a seasonal canopy covering a portion of a patio at Captain's Choice Restaurant, 4 Highland Road, Map 36, Parcel 93-D. This is continued from February 25, 2016.

Preliminary Plan

2016-003PB Steven F. Rogers seeks approval of a 9-lot preliminary subdivision pursuant to MGL c 41 Section 81-S and Section 2.4 of the Town of Truro Rules and Regulations Governing the Subdivision of Land for property located at 25 & 25A Pond Road, Assessor's Map 36, Parcels 39 & 35.

Commercial Site Plan Review, Continuance

2015-006SPR Michael A. Tribuna, Trustee, c/o Christopher R. Vaccaro, Esq., seeks approval of an Application for Commercial Development Site Plan Review pursuant to §70.3 of the Truro Zoning By-law for the filling of low area at 7 Parker Drive with related drainage improvements and erosion controls. There will be no new buildings or changes to existing buildings and structures. The property is also shown on Atlas Map 39 Parcel 168 & 169. This application was previously heard on September 8, 2015 and December 8, 2015. The application was re-advertised for hearing on February 2, 2016 and on request of the applicant was continued to February 25, 2016, and again continued to March 15, 2016.

Temporary Sign Permit

Payomet Performing Arts Center, seeks approval for two Applications for Temporary Sign Permit pursuant to §11 of the Truro Sign Code two (2) Temporary 48" high by 36" wide signs (March 16 – April 15, 2016) for various events in two locations (Route 6 at Noons Heights Rd and Route 6 at South Highland Rd).

Review and Approval of Meeting Minutes

February 25, 2016 Planning Board Meeting
March 7, 2016 site visit at 4 Highland Road

AGENDA CONTINUED ON OTHER SIDE….

Reports from Board Members and Staff

- Status of proposed zoning articles for ATM and possible scheduling of public hearing
- Election of Clerk

Meeting Dates and *Other Important Dates*:

- March 29, 2016 – Reg. Meeting
- April 12, 2016 – Reg. Meeting
- April 26, 2016 - Annual Town Meeting
- May 3, 2016 – Reg. Meeting

Adjourn

TOWN OF TRURO
PLANNING BOARD
NOTICE OF PUBLIC HEARING

The Truro Planning Board will hold a public hearing at 6:00 p.m. on Tuesday, March 15, 2016 at the Truro Town Hall located at 24 Town Hall Road, Truro to take comments on proposed modifications to three sections of the Town of Truro Zoning Bylaws related to the creation of accessory dwelling units. The proposed modifications include changes to *§40.2 Affordable Accessory Dwelling Units*, to make the provision "by right", remove affordability requirements unless the property is seeking property tax relief under MGL c. 59; and add design requirements. Other related changes to the bylaw are proposed for *§10.4 Definitions* and for *§30.2 Use Table* to make those sections consistent with proposed modifications to §40.2. The proposed changes are available for public viewing at the Town Clerk's Office and the Planning Department Office located at Truro Town Hall, 24 Town Hall Road, Truro from 8 am to 4 pm Monday through Friday.

Lisa Maria Tobia, Chair
Truro Planning Board
02/25/16, 03/3/16, 3/10/16

PROPOSED CHANGES RE: AFFORDABLE ACCESSORY DWELLING UNITS
DRAFT MARCH 1, 2016

§ 10.4. Definitions

Dwelling Unit, ~~Affordable~~ Accessory. A ~~rental~~ dwelling unit either detached from or located within or attached to a principal single family dwelling~~, principal~~ or an accessory structure to the principal single family dwelling on the same lot, such as a garage. The Accessory Dwelling Unit (ADU) shall ~~,~~ contain~~ing~~ at least four hundred (400) square feet but not more than one thousand four hundred (1,400) square feet of Gross Floor Area. An Accessory Dwelling ~~u~~Unit shall be a complete, separate housekeeping unit containing both kitchen and sanitary facilities in conformance with §40.2 of this bylaw (4/16). ~~restricted to remain affordable by conditions attached to the Special Permit issued by the Planning Board and be occupied by income-eligible households determined in accordance with HUD Income and Fair Market Rental Guidelines.~~

§ 30.2. Use Table

The following uses are permitted by district as indicated below, and consistent with the purposes for which the district was established. Uses not expressly permitted are deemed prohibited.

KEY

P	Permitted
SP	May be allowed by special permit granted by the Board of Appeals, or the Planning Board, where noted
N	Not Permitted
R	Residential
BP	Beach Point Limited Business
NT6A	Route 6A, North Truro Limited Business
TC	Truro Center Limited Business
NTC	North Truro Center General Business
Rt6	Route 6 General Business
S	Seashore

PRINCIPAL USES							
	R	BP	NT6A	TC	NTC	Rt6	S
AGRICULTURAL							
Agricultural (except Animal Husbandry); horticultural, floricultural	P	P	P	P	P	P	P
Animal husbandry, parcels of more than 5 acres	P	P	P	P	P	P	P
Animal husbandry, parcels of 5 acres or less	SP	SP	SP	N	SP	SP	SP
COMMERCIAL							
Automobile service, repair, storage, or salesrooms	N	N	N	N	P	P	N
Commercial fishing activity (1, 11)	P	P	P	P	P	P	P
Professional office (2)	N	P	P	P	P	P	N

PROPOSED CHANGES RE: AFFORDABLE ACCESSORY DWELLING UNITS
DRAFT MARCH 1, 2016

PRINCIPAL USES							
	R	BP	NT6A	TC	NTC	Rt6	S
Restaurant	N	N	N	P	P	P	N
Retail business service *(4/14)*	N	N	P	P	P	P	N
Retail sales *(4/14)*	N	N	N	P	P	P	N
Wholesale Trade *(4/14)*	N	N	SP	SP	P	P	N
INDUSTRIAL							
Communication structure	N	N	N	N	N	SP (4)	N
Industrial or manufacturing use (5)	N	N	N	N	SP	SP	N
Marine installation	SP	SP	SP	N	SP	SP	N
Public utility	N	N	N	N	P	P	P
Research or experimental lab (6)	SP	SP	SP	N	SP	SP	N
Small engine repair	SP	SP	SP	N	SP	SP	N
Trade, repair shop, etc. (7) *(4/14)*	N	N	P	P	P	P	N
INSTITUTIONAL							
Educational institution	P	P	P	P	P	P	P
Hospital, nursing and/or convalescent home	P	P	P	P	P	P	P
Municipal use *(4/13)*	P	P	P	P	P	P	P
Private club not conducted for profit	SP	SP	SP	N	SP	SP	N
National Seashore administration facilities, public facilities	N	N	N	N	N	N	P (11)
Religious institution	P	P	P	P	P	P	P
Large-Scale Gound-Mounted Photovoltaic Array *(4/11)*	SP (12)	N	N	N	N	P	P
RECREATIONAL							
Children's camp	SP	SP	SP	N	SP	SP	N
Park, playground, non-commercial recreation	P	P	P	N	P	P	N
RESIDENTIAL							

PROPOSED CHANGES RE: AFFORDABLE ACCESSORY DWELLING UNITS
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PRINCIPAL USES							
	R	BP	NT6A	TC	NTC	Rt6	S
Cottage or cabin colony, motor court	N	P	N	N	P	P	N
Duplex new (8)	N	SP	SP	SP	SP	SP	N
Duplex, conversion of existing single family dwelling (8)	SP	SP	SP	SP	SP	SP	N
Hotel	N	N	N	N	P	P	N
Motel	N	P	N	N	P	P	N
Single family dwelling (10)	P	P	P	P	P	P	P (11)
ACCESSORY USES							
Dwelling Unit, Affordable Accessory (10) *(04/~~07~~16)*	~~SP~~	~~SP~~	~~SP~~	~~SP~~	~~SP~~	~~SP~~	~~N~~ P
Bed and breakfast, home; as defined; Boarding House, Home, as defined	P	P	P	N	P	P	P (11)
Habitable Studio	P	P	P	N	N	P	P
Home occupation, as defined	P	P	P	P	P	P	P (11)
Other home occupation (5)	SP	SP	SP	N	SP	SP	N
Working Studio	P	P	P	N	N	P	P

(4/06)

NOTES

1. To include traditional fishing activities, opening of shellfish, storage and use of fishing equipment.
2. No more than four (4) offices per lot; 20% lot coverage permitted, exclusive of parking; storage of equipment or materials where they are visible from neighboring properties or public or private ways is prohibited; the Board of Appeals shall find that the proposed use does not produce any injurious or offensive dirt, odor, fumes, gas, noise, or danger from explosion or fire.
3. Reserved
   (4/14)
4. Includes buildings and appurtenances; Special Permit Granting Authority is the Planning Board.
5. The Board of Appeals shall find that a proposed use is not injurious or offensive or tends to reduce values in the same district by reason of dirt, odor, fumes, gas, sewage, noise, or danger from explosion or fire.
6. The Board of Appeals may approve activities which are necessary in connection

with scientific research or scientific development or related production, and which are accessory to a permitted use, if the Board finds the proposed accessory use does not substantially derogate from the public good; the proposed accessory use need not be located on the same parcel as the primary use.

7. Includes shops of carpenters, plumbers, electricians, dressmakers and similar tradespeople, repairs to radio-TV-computers and related electronic services, bicycle repairs, furniture repairs and upholstering.

(4/14)

8. Uses in this category are further subject to the special regulations set forth in § 40.1, Duplex Houses and Apartments.

9. Except trailers, mobile homes, Quonset huts or portable buildings. One tent for non-commercial use is allowed per lot, for a specified period of time and with the written consent of the owner and the Board of Health. The Board of Health may limit the period of time the tent is erected and used.

10. Uses in this category are further subject to the special regulations set forth in §40.2, Affordable Accessory Dwelling Unit ~~and the Planning Board shall serve as the Special Permit granting authority~~.

(04/~~07~~16)

11. Uses in this category are further subject to the special regulations set forth in § 30.3, Seashore District.

12. Except in the Solar Farm Overlay District, where the use is permitted.

(4/11)

++++++++++++++++++\

40.2 Affordable Accessory Dwelling Unit

(04/~~07~~16)

A. Purposes: ~~For the purpose of promoting the development of affordable rental housing in Truro for year-round residents, one affordable accessory dwelling unit, as defined in Section 10.4 – Definitions, per lot may be established subject to the requirements, standards and conditions listed below:~~

1. Add moderately priced rental units to the housing stock to meet the needs of smaller households and make housing units available to moderate income households who might otherwise have difficulty finding housing;

2. Increase the number of small dwelling units available for rent in Town, and increase the range of choice of housing accommodations;

3. Encourage greater diversity of population with particular attention to young adults and senior citizens; and

4. Encourage a more economic and energy-efficient use of the Town's housing supply while maintaining the appearance and character of the Town's single-family neighborhoods; and

5. Provide homeowners with a means of obtaining rental income to defray housing

costs.

~~A. One Affordable Accessory Dwelling Unit per buildable lot may be allowed in any district by Special Permit from the Planning Board.~~

~~B. An Affordable Accessory Dwelling Unit created under this by-law shall be occupied exclusively by income-eligible households, as defined by the guidelines in subsections D and E below. The affordability requirements of this section shall be incorporated into the terms of the Special Permit issued by the Planning Board. No accessory dwelling unit shall be constructed or occupied until proof of recording of the terms of the Special Permit decision in the Barnstable County Registry of Deeds within the time required by M.G.L. c. 40A has been provided to the Building Commissioner and to the Planning Board.~~

~~C.~~ B. Requirements and Standards

1. One ~~Affordable~~ Accessory Dwelling Unit (ADU) per buildable lot in any district may be established ~~within or attached to a principal dwelling, principal structure, or a garage or constructed as a detached unit, and~~ which must be located on the same lot as the other structure(s).

~~2. An Affordable Accessory Dwelling Unit shall not contain more than one thousand four hundred (1,400) square feet nor less than four hundred (400) square feet of Gross Floor Area as that term is defined in Section II of this Zoning By-law.~~

~~3.~~ 2. An ~~Affordable~~ ~~Accessory~~ ~~Dwelling~~ ~~Unit~~ within or attached to a principal dwelling, principal structure or garage that is a pre-existing nonconforming use or structure shall not increase any existing nonconformity.

~~4.~~ 3. A newly constructed detached ~~Affordable~~ ~~Accessory~~ ~~Dwelling~~ ~~Unit~~ shall comply with all applicable provisions of this by-law ~~unless specifically waived by the Planning Board~~.

~~5.~~ 4. Either the principal or the ~~Affordable~~ ~~Accessory~~ ~~Dwelling~~ ~~Unit~~ shall be owner-occupied. For the purposes of this section, any such dwelling shall be considered as owner-occupied if either dwelling unit is occupied on a year-round basis by the property owner of record, except for temporary absence during which the owner's unit is not rented for more than ninety (90) days.

~~6. The subsurface waste disposal system for an Affordable Accessory Dwelling Unit shall be reviewed and approved by the Health Agent and/or the Board of Health, as applicable.~~

~~7. The Building Commissioner and Health Agent shall inspect each Affordable Accessory Dwelling Unit at least annually for compliance with public safety and~~

~~public health codes, respectively. A written consent form to allow for the inspection must be filed at the beginning of any tenancy.~~

~~8.~~ 5. An ~~Affordable~~ A~~ccessory~~ Dwelling U~~nit~~ shall be maintained in the same record ownership as that of the principal dwelling unit or principal structure. Prior to occupancy of an ~~Affordable~~ A~~ccessory~~ Dwelling U~~nit~~ the lot upon which it stands shall be made subject to a recorded instrument that restricts the property owner's ability to convey any interest in the ~~Affordable~~ A~~ccessory~~ Dwelling U~~nit~~, apart from the principal dwelling unit or structures, other than a leasehold estate, for the term of the restriction.

6. An ADU shall not be used for boarding and lodging, or commercial use. An ADU or the principal dwelling to which it is accessory, whichever is not the owner-occupied unit, may be rented for periods not shorter than six months at a time, and both the ADU and the principal dwelling are prohibited from any use as rental units on a weekly, twice-monthly or daily basis.

C. Use, Design and Dimensional Requirements:

1. The ADU shall be a complete, separate housekeeping unit containing both kitchen and sanitary facilities.
2. An ADU shall not contain more than one thousand four hundred (1,400) square feet nor less than four hundred (400) square feet of Gross Floor Area as that term is defined in Section II of this Zoning By-law.
3. At least one (1) off street parking space in addition to that required for the principal single family dwelling is required for an ADU.
4. An ADU and principal dwelling shall share common septic/ wastewater and water service facilities. The Board of Health must have documented to the Building Commissioner that sewage disposal will be satisfactorily provided for in accordance with the provisions of Title 5 and local Board of Health regulations, including provisions for an appropriate reserve area on the site. The principal dwelling unit and ADU shall meet all wastewater requirements for the combined number of bedrooms/ wastewater flow on the lot.
5. If the primary entrance of an ADU is not proposed to be shared with that of the principal dwelling, such entrance shall be less visible from the street view of the principal dwelling than the main entrance of the principal dwelling.

~~1.~~6. An ADU shall be clearly subordinate in use, size and design to the principal single-family dwelling. An ADU shall be designed so that, to the maximum extent practical, the appearance of the property on which it is to be located remains that of a single-family residential property and the privacy of abutting properties is maintained, considering the following: building architectural details, roof design, building spacing and orientation, building screening, door and window location, and building materials.

D. Procedure Administration and Enforcement:

PROPOSED CHANGES RE: AFFORDABLE ACCESSORY DWELLING UNITS
DRAFT MARCH 1, 2016

1. An ADU shall be permitted as a "By Right" use accessory to a lawful single-family dwelling use. A building permit shall be required for each ADU.
2. The Building Commissioner/ Chief Zoning Officer shall administer and enforce the provisions of §40.2.A-D.
3. ADUs shall not be eligible for zoning use variances, or for zoning dimensional variance relief proposing to increase the allowable number of ADUs on a lot, which shall be considered a use variance.
4. The construction of any ADU must be in conformity with the State Building Code, Title V of the State Sanitary Code and lawful under all other provisions of applicable town health, building, zoning and other local laws and regulations.
5. Prior to issuance of a building permit for an ADU, site plans, floor plans and elevations shall be submitted showing the proposed interior and exterior changes to existing buildings or new building and improvements on a lot associated with a proposed ADU consistent with this bylaw.
   The Building Commissioner and Health Agent shall inspect each Accessory Dwelling Unit at least annually for compliance with public safety and public health codes, respectively. A written consent form to allow for the inspection must be filed at the beginning of any tenancy.

40. E Property Tax Exemption for Affordable ADU

Any ADU that is created under this bylaw that meets the affordability requirements of subsection 40.E.1 and 40.E.2 of this bylaw is qualified to seek a property tax exemption under General Laws Chapter 59 and Chapter 306 of the Acts of 2014.

~~D.~~ 1. All occupants of an ~~Affordable~~ A~~ccessory~~ D~~welling~~ U~~nit~~ shall upon initial application and annually thereafter on the first of September in each calendar year, submit to the Town or its agent the documentation necessary to confirm their eligibility to occupy the dwelling unit. Specifically, all dwelling units must be rented to those meeting the following guidelines for a low or moderate-income family: (1) low income families having an income not exceeding eighty (80) percent of the Barnstable County median family income, and (2) moderate income families having an income between eighty (80) and one hundred twenty (120) percent of the Barnstable County median family income and, as determined by the United States Department of Housing and Urban Development (HUD) Published Income Guidelines, as they may from time to time be amended.

~~E.~~ 2. Maximum rents shall be established in accordance with Fair Market Rental Guidelines published from time to time by the United States Department of Housing and Urban Development (HUD). Property owners are required to submit to the Town or its agent information on the rents to be charged. Each year thereafter on the first of September, they shall submit to the Town or its agent information on annual rents to be charged. Forms for this purpose shall be provided by the Town. Rents may be adjusted upward and shall be adjusted downward annually in accordance with adjustments to the Fair Market Rental Guidelines.

~~F. Procedure~~

1. ~~The property owner shall complete and submit an application for a Special Permit to the Planning Board~~

2. ~~The Planning Board shall hold a public hearing in accordance with the procedures and requirements set forth in Section 9 of MGL, Chapter 40A and the Truro Zoning By-law, Section 30.8~~

3. ~~The Planning Board may grant a Special Permits only if it finds that the proposal complies with the provisions of this bylaw, §40.2, and that it complies with the applicable criteria for granting Special Permit, as detailed in §30.8.~~

4. ~~If the Planning Board grants the Special Permit and following expiration of any applicable appeal period, the property owner shall complete and submit to the Building Commissioner an application for a Building Permit to allow a change in use.~~

5. ~~The property owner shall obtain a Certificate of Occupancy from the Building Commissioner prior to any occupancy of the Affordable Accessory Dwelling Unit.~~

6. ~~An appeal of a determination of the Planning Board under this section may be taken in accordance with Section 17 of MGL, Chapter 40A.~~

~~G. Penalty – Failure of the applicant to comply with any provision of this section is punishable by a fine established in Section 60.1 of the Truro Zoning By-laws and/or may result in the revocation of the Special Permit.~~

TOWN OF TRURO

P.O. Box 2030, Truro, MA 02666
Tel: (508) 349-7004 Fax: (508) 349-5505

Memorandum
To: Planning Board
Fr: Carole Ridley
Date: March 9, 2016
Re: 2016-002PB Cellco Partnership d/b/a Verizon Wireless

2016-002PB Cellco Partnership d/b/a Verizon Wireless is seeking a Special Permit pursuant to §40.5 (Communication Structures, Buildings, Appurtenances) of the Town of Truro Zoning Bylaw to allow for the replacement and collocation of wireless communications transmissions equipment on an existing tower located behind the Public Safety Facility. The property is located at 344 Route 6, Map 39, Parcel 172.

As discussed more fully under Planning Board Jurisdiction below, the applicant has filed for a Special Permit while reserving rights under the Spectrum Act. According to the Act, a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station. (47 U.S.C 6409(a)(1)) If the Board finds that the proposal is an eligible facilities request that does not substantially change the physical dimensions of the tower, it must approve the Special Permit.

Project Description

The project proposes to replace and install the following communications equipment:

- Replace nine of twelve existing antennas and relocate one of the antennas on the existing mounting structure at the 130-foot level.
- Collocate three remote radio heads and two junction boxes at the 130-foot level.
- Add two hybrid flex lines on the existing cable ladder to connect the antennas with the existing equipment room.

The cell tower is an existing 170-foot structure owned by Crown Castle on Town property. The tower received Special Permit approval by the Planning Board in 2000. The 2000 Planning Board decision is included in the applicant's submission. Crown Castle has authorized Verizon Wireless to submit the current application for Special Permit on its behalf. As the lessor, the Town of Truro acting through the Board of Selectmen has granted consent for the proposed improvements.

Materials Submitted

The applicant submitted the following materials:

- Application for Special Permit and fee of $50 received by Town Clerk on January 27, 2016
- Letter from Crown Castle authorizing Verizon Wireless to seek approvals for equipment replacement and collocation on its behalf subject to terms
- Letter from Michael Giaimo, Esq to Cynthia Slade (January 26, 2016) re: Application for Special Permit and Eligible Facilities Request
- Written Statement by Michael S. Giaimo, Esq. in Support of Application for Special Permit
- Plans entitled: "Verizonwireless Truro_MA_HD AWS UPGRADE" prepared by Turning Mill Consultants, Inc., 9/25/15, Scale None, sheets T-1 (Title), E-1 Compound Plan & Elevation, E-2 Construction Details, stamped by James P. Stroke, P.E.
- The Structural Analysis Report for Carrier Designation: Verizon Wireless Co-Locate, Carrier Site Number 138549, Carrier Site Name: Truro, MA, prepared by Jacobs Engineering Group for Crown Castle, dated September 30, 2015, stamped by Walter M. Prather, P.E.
- True copy attest of the Town of Truro Planning Board Hearing Decision on the application of Sprint Spectrum, L. P. and Nextel Communications of the Mid-Atlantic, Inc., dated May 19, 2000.
- Memorandum of Wireless Communications Facilities Lease Agreement between the Town of Truro and Sprint Spectrum, L. P. and Nextel Communications of the Mid-Atlantic, Inc., April 19, 2000.
- Certified abutters list (Note that a post card announcing the date and time of the hearing for this Special Permit was mailed to abutters on February 12, 2015)

The application materials were reviewed against the submission requirements outlined in § 40.5 (see Special Permit Requirements below). On March 4th a letter (enclosed) was emailed to the applicant requiring the following additional information:

- Information to complete the response of §40.5.B.3
- Information related to conditions 3 and 4 of the Special Permit granted in 2000, related to noise abatement and testing

The applicant has submitted a written request to waive the following requirements on the grounds that granting these waivers would not result in expense to the Town, would not be detrimental to public interests or be inconsistent with the purpose and intent of the bylaw:

- 40.5.B.17 – information meeting with the Planning Board
- 40.5.B.19 – information requirements
- 40.5.B.20 (a) – draft contract
- 40.5.B.20 (c) and (d) – site plan for fall zones, etc.; landscape plan

Specific votes should be taken on each waiver request.

Planning Board Jurisdiction

The applicant has filed for a Special Permit pursuant to § 40.5, while reserving rights under the Spectrum Act. Section 6409 of the Spectrum Act amended the Telecommunications Act of 1996 by providing, among other things, that:

> A State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station. (47 U.S.C 6409(a)(1))

The Town's role is further defined by the Act as follows:

- A decision must be made within 60 days (in this case March 27, 2016)
- The Board may only request information to assist in determining whether this is an eligible facility under the Act
- The Board's review is limited to whether the applicant meets the criteria as an eligible facility related to an existing cell tower. Accordingly the Board must determine:
  1. Whether the request is an eligible facilities request involving the (a) collocation of new transmission equipment, (b) removal of transmission equipment, or (c) replacement of transmission equipment, and,
  2. Whether the requested modification does or does not "substantially change the physical dimensions of such tower or base station."

Therefore, if the Board finds that the request is an eligible facilities request and does not constitute a substantial change, then the request must be approved.

The applicant has provided evidence in support of their position that the installation proposal meets the requirements of an eligible project under the Spectrum Act, and does not substantially change the physical dimension of the tower or base station.

Accordingly, the Board should consider the following actions:

1. Vote based on a finding of fact as to whether it concurs that the proposed installation is an eligible facilities request under the Spectrum Act that does not substantially change the physical dimension of the cell tower or base station. Note that if this finding is affirmative, the Board may not deny the request for a Special Permit.

Possible Motion: The Truro Planning Board makes the following findings of fact that the proposed installation described in the application **2016-002PB Cellco Partnership d/b/a Verizon Wireless** satisfies/does not satisfy the criteria for determining an eligible facility that does not substantially change the physical dimension of the existing cell tower, as set forth under 47 U.S.C. §6409, and therefore is/is not an eligible facility under the Act.

[List findings of fact, which may relate to facts provided on page 3 of the Statement in Support of the Application for Special Permit.]

2. Vote on each of the waiver requests
Possible Motion: Vote to grant/deny the following waiver(s) pursuant to §40.5.B.24 [list waiver(s)] based on a finding that granting the waiver (s) would not result in any expense to the Town, would not be detrimental to the public interest, and would not be inconsistent with the purpose and intent of the Zoning Bylaw.

3.Vote on the request for a Special Permit pursuant to section § 40.5.
Possible Motion: To approve/deny a Special Permit pursuant to section § 40.5 of the Town of Truro Zoning Bylaw for **2016-002PB Cellco Partnership d/b/a Verizon Wireless** to allow for the replacement and collocation of wireless communications transmissions equipment on an existing tower located behind the Public Safety Facility located at 344 Route 6, Map 39, Parcel 172.

A review the application in terms of the requirements of § 40.5 follows.

Review of Special Permit Requirements

§ 40.5 Communication Structures, Buildings and Appurtenances
B. Requirements:
1. All building permits for a communications structure, building or appurtenance shall require a special permit from the Planning Board.
The Building Commissioner has indicated that the applicant must receive a Special Permit from the Planning Board in order to be issued a Building Permit

2. The minimum distance from the perimeter of the communications structure to any property line shall be the height of the structure including any antennas or appurtenances, plus ten (10) feet. The minimum distance from any guy wire, anchor or brace to any property line shall be the length of the guy wire or brace plus ten (10) feet. The setbacks for a communications building shall comply with the setback requirements of the zoning district.
The Planning Board decision for the cell town appears to waive the setback requirements – see findings of fact item #2

3. The communications structure, building or appurtenance shall be installed, maintained and operated in accordance with all applicable federal, state, county and local codes, standards and regulations and shall be designed to withstand sustained winds and gusts of a category 5 hurricane. If Federal Aviation Administration (FAA) or Federal Communications Commission (FCC) regulations are changed, then the owner or operator shall bring the structure, building and appurtenances into compliance with the new regulations within six (6) months of the effective date of such regulations or earlier if a more stringent compliance schedule is included in the regulation. Failure to comply with any new regulations shall be grounds for the removal of non-complying structures, buildings and appurtenances at the owner's expense.
The applicant has demonstrated, through details on the site plan and a Structural

Analysis Report, that all applicable building codes are met by the installation, and the installation will be undertaken in accordance with building code requirements and that the existing town can support the installation without failure. The applicant has not provided information to confirm that, if FAA or FCC regulations change, compliance with those regulations would be effected within 6 months.

4. The height of the communications structure (tower) shall be no greater than one hundred and fifty (150 feet) above ground level.
The Planning Board decision for the cell town appears to waive the height limit – see findings of fact item #4

5. Communication antennas shall be located on pre-existing structures unless the applicant demonstrates that there are no feasible pre-existing structures. The installation shall preserve the character of such pre-existing structures.
The Planning Board decision for the cell town appears to conclude that location of communications equipment on the single tower "...would have the least impact on the community while reducing the number of towers needed to service the community." (see findings of fact item #4) Also, the Planning Board decision appears to conclude that there are no feasible pre-existing structures on which they could co-locate..." (see findings of fact #5)

6. If the applicant has demonstrated that there are no feasible pre-existing structures to support antennas and appurtenances for the intended use, then any communications structure, building or appurtenance may be sited on public land.
This requirement is not applicable to the proposed installation, which is not a proposed tower.

7. To the extent lawful and feasible, all service providers shall co-locate on a single tower. Towers shall be designed to structurally accommodate the maximum number of foreseeable users (within a ten-year period) technically practicable. The applicant is required to document all co-location tenants and provide a tower design indicating types and location of all facilities.
This requirement is not applicable to the proposed installation, which is not a proposed tower.

8. New facilities or structures shall be considered only upon a finding by the Planning Board that existing or approved facilities or structures cannot accommodate the wireless communications equipment planned for the proposed tower.
This requirement is not applicable to the proposed installation, which is not a proposed tower.

9. The installation of a communications structure, building or appurtenance shall be designed to minimize visual impact; the maximum amount of natural vegetation shall be preserved; details of construction and finish shall blend with the surroundings; additional vegetative screening shall be employed where practical and particularly to screen abutting residential property whether developed or not. A detailed landscape

plan will be required with the application.
The applicant has indicated that the proposed changes to the Tower will not change the visual impact of the existing structure, as the new equipment will be located at the same height, and the same distance from the Tower and will be painted to blend with the existing structure.

10. Location and siting of facilities and structures shall be consistent with any regional location and siting criteria established by the Cape Cod Commission.
This requirement is not applicable to the proposed installation, which is not a proposed tower.

11. Under normal operating conditions, noise emanating from the communications structure, building or appurtenance shall not be greater at the boundary of the lot on which it is sited than would otherwise exist in the absence of these facilities.
The applicant has indicated that the installation will not alter noise levels from existing conditions and that no new noise producing equipment is being added.

The Planning Board decision condition #3 states that "...noise on the proposed tower shall be minimized by cutting vertical mount pipes flush or below the antenna panel, capping the mount popes, bundling the wires here feasible, and utilizing other noise abatement measures where feasible." The applicant should provide information to demonstrate compliance with this condition of the special permit, and specifically any noise abatement measures that seek to reduce noise impacts on abutting properties.

The Planning Board decision condition #4 states that "Sprint shall take ground level benchmark measurements of the sound levels emanating form the tower at the four major compass points on the site before tower construction and upon completion of tower construction and removal of he existing tower. Sprint shall filed these measurements with the Truro Planning Board and Truro Board of Health." No record of compliance with this condition is found in the Planning or Health Departments. While it is no longer possible to take pre-construction readings, baseline readings should be provided to the town after the proposed installation takes place.

12. No hazardous waste shall be discharged on the site. Any storage of fuel shall be in compliance with the Board of Health regulations. Documentation shall be provided for the contents of all communications buildings and/or cabinets.
The applicant has indicated that no discharge of hazardous waste or change to fuel storage is proposed.

13. All run-off of storm water from communications structures, buildings, and appurtenances, driveways and parking areas shall be contained on site; the amount of impervious surface on the site shall be minimized.
The applicant has indicated that no ground-based appurtenances are being added, and there are no proposed changes that will increase impervious surfaces or

change the amount of or method of handling storm water run-off.

14. Lighting, when required and permitted by the FAA or the Planning Board, shall be directed inward so as not to project onto surrounding properties.
The applicant has indicated that no lighting is being added or changed.

15. All structures, buildings or appurtenances must be secured to control access. Fencing materials shall be consistent with the character of abutting properties, with a locked gate and proper warning signals. A sign must be displayed indicating the name of the owner(s) and a 24 hour contact number. Only signs limited to safety will be allowed. Fencing is not required for antennas or other appurtenances mounted on a pre-existing structure.
The applicant has indicated that appurtenances on the tower will remain inaccessible except to authorized contractors. No changes are proposed to existing controls on access to the Tower and ground compound.

16. As a condition of approval of the application the applicant shall agree, by execution of a covenant, to remove within six months any communications structure and building which has not operated for four consecutive months unless the cause is major damage which prohibits operation. In the event that major damage has rendered the facility inoperative, repair or removal of the facility shall begin within six months and be completed within an additional six months. Failure to comply with the conditions of the covenant shall be grounds for the removal of structures, buildings and appurtenances. Complete restoration of the site shall be at the owner(s) expense, secured by a bond from a recognized financial institution. The covenant shall include, also at the owner(s) expense, provision for liability insurance for any damage to any abutting property whether developed or not.

17. At least forty-five (45) days before submitting an application for a special permit for the installation of a communications structure, building or appurtenance the applicant shall consult with the Planning Board. The purpose of the consultation is to facilitate the permitting process by the exchange of information between the applicant and the Planning Board, and for the applicant to obtain a detailed description of the information and documentation required, in writing, by the Planning Board, in order to clarify and resolve concerns of the Board and minimize potential problems with the application.
The applicant has submitted a written request for a waiver of this requirement.

18. The Planning Board shall hold a public hearing within sixty-five (65) days of the filing of an application and shall issue a decision within ninety (90) days following the date of the public hearing.
The scheduled public hearing is within 65 days of the filing (1/27/16). The Spectrum Act requires action within 60 days (3/26/16)

19. The applicant shall submit the following written information to the Planning Board:

a. A survey of all sites for the installation of communications structures, buildings or appurtenances which are feasible for providing the intended services. The survey shall include a rationale for the selection of a prime and at least one alternative site. All sites in Truro shall be located on the appropriate sheet(s) of the Truro Assessor's Atlas;
b. A survey of all pre-existing structures which are capable of supporting the equipment necessary to provide the intended service and a technical report which demonstrates why any such structure cannot be used by the applicant;
c. The radiation pattern of all proposed antennas showing the frequency and intensity of radiation at ground level and at 30 feet above ground level. At the expense of the applicant, Electro Magnetic Field (EMF) readings shall be provided to the Board of Health yearly and immediately after any addition to the facility;
d. The sound level in decibels at ground level, at 30 feet above ground level and at the top of the facility and 10, 50, 100 and 500 feet from the communications structure, building or appurtenances for wind velocities between calm and 100 miles per hour with all equipment operating at normal levels, including before condition measured, after condition prediction and cumulative condition (with co-location) prediction;
e. A delineation of the Assessor's Atlas of all areas in Truro which will not be served by the proposed installation for the prime and an alternative site;
f. A statement of the services to be supported by the proposed communications structure, building or appurtenance;
g. Plans of special design features and materials, including landscaping, to minimize the visual impact of proposed communications structures, buildings and appurtenances. Site plans, elevations and fall zone should be included;
h. A certification that the applicant has complied with all federal (including FAA), state and regional requirements to provide the proposed service and demonstration of compliance with the FCC guidelines for EMF's under National Environmental Policy Act (NEPA), including copies of the FCC Form 600, plus Environmental Assessment/Environmental Impact Statements as applicable;
i. Within thirty (30) days after the application filing, the applicant shall arrange to fly a three-foot-diameter balloon at the primary and an alternate site at the maximum height of the proposed installation. The date and location of the flights shall be advertised at least 14 days, but not more than 21 days before the flights, in a newspaper with a general circulation in Truro. Photos shall be provided from all strategic viewing points, per agreement with the Planning Board prior to flight.
The applicant has submitted a written request for a waiver of these requirements.

20. If a communications structure, building or appurtenance is to be installed on a pre-existing private structure or on land or a structure owned, prior to the effective date of the bylaw, by the Commonwealth of Massachusetts, or on land or a structure owned by the Town of Truro, the applicant shall submit the following written information to the Planning Board:

a. A draft contract, including requirements for removal of all structures and for complete site restoration in the case of discontinued use, between the applicant and the owner (if different from the applicant).
The applicant has submitted a written request for a waiver of this requirement.
b. A description of the proposed facility at the proposed prime and alternate sites including:
i. Height of the facility and its associated equipment and antennas;
ii. Access roads and power supplies;
iii. Type, size and number of transmitters.
iv. A list of all fuels to be used on the site and a detailed description of how each shall be contained.
This requirement is not applicable to the proposed installation, which is not a proposed tower.
c. A site plan (scale not less than 1 inch=40 feet), showing the proposed facility, fall zones, existing and proposed contour elevations, 100-year flood zones, water resources, Zones of Contribution, waterways, wetlands and all associated equipment and structures on the site, including elevations of all equipment and structures with sufficient detail to delineate the external finish of all structures and equipment;
The applicant has submitted a written request for a waiver of this requirement.
and
d. A landscape plan showing the proposed site before and after development, including topography and screening proposed to protect abutters.
The applicant has submitted a written request for a waiver of these requirements.

21. Not included herein as 40.5.20 applies

22. All written information submitted in accordance with the requirements listed in any previous section of this bylaw shall be certified by an appropriate licensed professional.
The application materials were prepared and submitted by Robinson & Cole LLP. Michael S. Giaimo, Esq.

The following plans were submitted: "Verizonwireless Truro_MA_HD AWS UPGRADE" prepared by Turning Mill Consultants, Inc,, 9/25/15, Scale None, sheets T-1 (Title), E-1 Compound Plan & Elevation, E-2 Construction Details, stamped by James P. Stroke, P.E.

The Structural Analysis Report for Carrier Designation: Verizon Wireless Co-Locate, Carrier Site Number 138549, Carrier Site Name: Truro, MA, prepared by Jacobs Engineering Group for Crown Castle, dated September 30, 2015, stamped by Walter M. Prather, P.E.

23. The Planning Board may also refer applications to the Board of Health, the Zoning Board of Appeals, and the Conservation Commission for review.
The application was referred to the Health/Conservation Department, Building Commissioner, Fire Department, Police Department and Department of Public Works. The Fire and Police Department replied with no comments or concerns. The Conservation Department noted no impacts to wetland resources. The Health Department noted on-going noise impacts of concern to abutting neighbors, and noted that a condition of the Special Permit for the Town was the submission of noise data to the Board of Health, for which there is no record of receipt.

24. The Planning Board shall not approve any application that does not comply with all the requirements of this bylaw. The Board does, however, have the right to waive any part of this bylaw, when in its opinion, such a waiver would not be detrimental to the public interest, cause the Town any expense, or be inconsistent with the intent and purpose of this bylaw.
As noted above, written requests for waivers have been submitted for
40.5.B.17 – information meeting with the Planning Board
40.5.B.19 – information requirements
40.5.B.20(a) – draft contract
40.5.B.20(c) and (d) – site plan for fall zones, etc.; landscape plan

Specific votes on each waiver should be taken.

25. Any permit issued by the Planning Board for a communications facility shall be valid for the applicant only; it may not be reassigned, leased or sold.

26. Municipal and private, non-commercial uses are exempted from this bylaw.

27. The Planning Board shall act in accordance with the standards and requirements set forth herein and in accordance with the Massachusetts General Laws.

28. The invalidity of any section of this bylaw shall not invalidate any other section.

TOWN OF TRURO
Planning Department

P.O. Box 2030, Truro, MA 02666
Tel: (508) 349-7004, Ext. 27 Fax: (508) 349-5505
cridley@truro-ma.gov

Mr. Michael S. Giaimo, Esq.
Robinson & Cole LLP
One Boston Place
Suite 2500
Boston, MA 02108-4404

March 4, 2016

Re: 2016-002PB Cellco Partnership d/b/a Verizon Wireless

Dear Mr. Giaimo:

I have reviewed the above referenced application for a Special Permit pursuant to §40.5 of the Truro Zoning Bylaw, and find that additional information is called for.

In reference to compliance with §40.5.B.3, the application provides an affirmative statement with respect to compliance with structural codes. Please provide information related to the remaining section of this requirement: "If Federal Aviation Administration (FAA) or Federal Communications Commission (FCC) regulations are changed, then the owner or operator shall bring the structure, building and appurtenances into compliance with the new regulations within six (6) months of the effective date of such regulations or earlier if a more stringent compliance schedule is included in the regulation. Failure to comply with any new regulations shall be grounds for the removal of non-complying structures, buildings and appurtenances at the owner's expense."

The Planning Board decision granting the Special Permit for the Tower contains the following conditions for which additional information is requested, as noted below:

> Condition #3: "…noise on the proposed tower shall be minimized by cutting vertical mount pipes flush or below the antenna panel, capping the mount popes, bundling the wires here feasible, and utilizing other noise abatement measures where feasible." Please provide information to demonstrate compliance with this condition of the Special Permit, and, specifically, any noise abatement measures that will be incorporated into the proposed installation.
>
> Condition #4: "Sprint shall take ground level benchmark measurements of the sound levels emanating form the tower at the four major compass points on the site before tower construction and upon completion of tower construction and removal of he existing tower. Sprint shall filed these measurements with the Truro Planning Board and Truro Board of Health." The Health Department reports that they have no record of having

received information to demonstrate compliance with this condition. Please provide information to confirm compliance with this condition.

This matter is scheduled for public hearing on March 15, 2015, 6 pm, at Truro Town Hall. Please provide this information to the Truro Town Clerk by Friday, March 11, 2015. Please feel free to contact me at 508-221-8941 with any questions related to this request.

Thank you.

Sincerely,

Carole Ridley

Carole Ridley
Planning Consultant

Health/Conservation Agent
Town of Truro
Phone: (508) 349-7004 ext. 32

MEMO

To: Carole Ridley, Planning Consultant for the Town of Truro
From: Patricia Pajaron
CC:
Date: March 1, 2016
Re: **Development Application Referral; Cellco Partnership d/b/a Verizon Wireless 344 Route 6**

I have reviewed the Application for Special Permit prepared by Michael S. Giaimo, Esq. of Robinson and Cole LLP, Statement in Support of Application for Special Permit "Statement" dated January 26, 2015, along with other supporting documents to replace and collocate wireless communications and offer the following comments as it relates to health and environmental issues:

CONSERVATION

1. According to the OLIVER GIS maps available online at the MassDEP website, there appear to be no Wetland Resource Areas subject to protection under the Massachusetts Wetlands Protection Act (310 CMR 10.00) affecting the property; therefore Conservation Commission review and approval are not required at this time.

HEALTH

1. The applicants indicate in the Statement that the proposed changes will not change the visual impact of the Tower, no discharge of hazardous water or change in fuel storage is being proposed, no ground appurtenances are being added or increase in impervious surfaces. The applicant also states that the replacement of the appurtenances will not change levels from existing conditions and no new noise-producing equipment is being added. The Board should be aware that in the past there have been concerns raised by residents in the vicinity of the Tower. The issues raised were regarding noise generated from the equipment during high wind events. Noise measurements and readings were required to be done annually under the original Special Permit for the Tower. I have not seen any record of pre and post construction benchmark sound measurements taken at this site.

Crown Castle
3530 Toringdon Way
Suite 300
Charlotte, NC 28277

Shannon Hough
Tel (704) 405-6593
Fax (724) 416-6496
www.crowncastle.com

October 20, 2015

VIA EMAIL

Town of Truro
P.O. Box 2012
Truro, MA 02666

Re: 841273 / TRURO/ 344 ROUTE 6, NORTH TRURO, MA 02652
Wireless Communications Facilities Lease Agreement dated March 7, 2000, as modified by Assignment and Assumption of Lease Agreement dated June 9, 2004 ("Lease"), between The Town of Truro, Massachusetts ("Landlord") and NCWPCS MPL 24-Year Sites Tower Holdings LLC, successor in interest to Cingular Wireless ("Tenant"), by CCATT LLC ("CCATT"), Tenant's Attorney in Fact.
Consent for Modification / App # 312788

Dear Landlord:

Pursuant to an agreement between NCWPCS MPL 24 - Year Sites Tower Holdings LLC, successor in interest to New Cingular Wireless PCS, LLC ("AT&T") and CCATT LLC ("CCATT"), CCATT manages and operates the tower site that is subject to the Lease on behalf of AT&T. CCATT is a Crown Castle company. CCATT and its affiliates and subsidiaries own and operate shared wireless communication facilities.

In order to better serve the public and minimize the amount of towers in an area where this property is located, AT&T plans to modify Verizon Wireless's equipment at the wireless communication facility. Verizon will be replacing ten (10) existing antennas with ten (10) new antennas. They will be adding six (6) RRHs, two (2) junction boxes, and two (2) fiber lines. There will be no changes to the ground space. Final configuration will be twelve (12) antennas, eighteen (18) coax, two (2) fiber cables, six (6) RRHs, and (2) junction boxes.

AT&T has authorized CCATT to contact you and request consent to the modification of existing equipment. Pursuant to Paragraph (1) of the Lease, AT&T is required to obtain your consent. Therefore, CCATT, on behalf of AT&T, respectfully requests your consent to this modification.

Please indicate your consent by executing this letter where indicated below and return a copy to me via fax or email.

Thank you for your continued cooperation with Crown Castle. If you have any questions concerning this issue, please contact: Shannon Hough at (704) 405-6593 or shannon.hough@crowncastle.com.

Yours truly,

Shannon Hough
Real Estate Specialist – East Area

Agreed and accepted this 27th day of OCTOBER, 2015

(Lessor's signature)

TOWN OF TRURO PLANNING BOARD

Office of Town Clerk
Treasurer – Tax Collector
$100 Fee PAID
JAN 27 2016
2016-002/PB
Received TOWN OF TRURO
By Molly Stevens

APPLICATION FOR SPECIAL PERMIT

Date January 26 , 2016

To the Town Clerk of the Town of Truro, MA

The undersigned hereby files with specific grounds for this application:

Applicant seeks approval and authorization of uses under Section 40.5 of the Truro Zoning By-law concerning *(describe)* the replacement and collocation of wireless communications transmission equipment on an existing tower, which is an eligible facilities request under Section 6409 of the Spectrum Act.

Property Address 344 Route 6 Map(s) and Parcel(s) 39/172

Registry of Deeds title reference: Book 7197, Page 177, or Certificate of Title Number _____ and Land Ct. Lot # _____ and Plan # _____

Applicant's Name Cellco Partnership d/b/a Verizon Wireless

Applicant's Legal Mailing Address 118 Flanders Road, 3rd Floor, Westborough, MA 01581-3936

Applicant's Phone(s), Fax and Email See Representative's contact information

Applicant is one of the following: *(please check appropriate box)*

☐ Owner ☐ Prospective Buyer* ☒ Other* *Written Permission of the owner is required for submittal of this application.

Owner's Name Town of Truro

Owner's Address _____

Representative's Name and Address Michael S. Giaimo, Esq., Robinson & Cole LLP, One Boston Place, 25th Floor, Boston, MA 02108

Representative's Phone(s), Fax and Email (p) 617-557-5959 (f) 617-557-5999 (e) mgiaimo@rc.com

Michael S. Giaimo
Applicant(s)/Representative Signature

Please see attached letter
Owner(s) Signature or written permission

Your signature(s) on this application authorizes the Members of the Planning Board and town staff to visit and enter upon the subject property.

Applications must be typed or printed clearly with black or blue ink.

Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Crown Castle, does hereby authorize **Verizon Wireless** and its authorized contractors/agents to act as "Applicant" in the processing of all applications, permits, research and other related activities associated with the processing, planning, design review, permitting, entitlement and construction of additional equipment, antennas and site improvements for the Crown Castle existing wireless communications facility described as follows:

Customer Site Name:	**Truro, MA**	**Crown Castle Site ID Number:**	**841273**
Site Address:	**344 Route 6 North Truro, MA 02652**	**Crown Castle Site Name:**	**TRURO**

This authorization is fully contingent upon **Verizon Wireless** authorized contractors/agents' compliance with the following conditions:

1. Crown Castle must review the application prior to submittal. Crown Castle must be provided all applications, narratives, drawings and attachments at least 72 hours in advance of their submittal to the locality. Use of email and electronic attachments is encouraged. A Crown Castle Zoning Subject Matter Expert (SME) will review and provide written comment to the customer within 48 hours of receipt of a complete set of application materials. If Crown Castle indicates that changes are required, submissions shall be altered in accordance with Crown Castle comments prior to submission to the locality. Verification of corrections should also be accomplished via emails and attachments.
2. In no event may **Verizon Wireless** encourage, suggest, participate in, or permit the imposition of any restrictions or additional obligations whatsoever on the tower site or Crown Castle's current or future use or ability to license space at the tower site as part of or in exchange for obtaining any approval, permit, exception or variance.
3. A copy of the final permit and/or a written summary of the zoning/entitlement decision rendered by the locality and any/all conditions placed on that decision shall be communicated in detail to Crown Castle well within the appeal period provided by the locality (typically 10-15 days).
4. All conditions of approval pertinent to the construction of the proposed project must be included in the construction drawings for the project. The conditions of approval pertinent to the construction of the project shall be copied verbatim from the zoning permit approval language, and shall be present in the drawings prior to submission for building permits and contractor bidding. Crown Castle shall verify the inclusion of appropriate conditions of approval in the construction drawing redline process.
5. Crown Castle will provide a Notice To Proceed (NTP) to construction to the customer upon receipt of the final approved zoning permit and the approved Building Permit.

By Crown Castle:

Signature: _____

Printed Name: Zachary Plummer

Title: Real Estate Specialist

Date: November 19, 2015

Robinson+Cole

MICHAEL S. GIAIMO

One Boston Place, 25th floor
Boston, MA 02108-4404
Main (617) 557-5900
Fax (617) 557-5999
mgiaimo@rc.com
Direct (617) 557-5959

January 26, 2016

Cynthia Slade
Town Clerk
Town of Truro
24 Town Hall Road
PO Box 2012
Truro, MA 02666

Re: **Application for Special Permit and Eligible Facilities Request**
Applicant: **Cellco Partnership d/b/a Verizon Wireless**
Owner: **Town of Truro/Crown Castle**
Property: **344 Route 6, North Truro — Map 39, Lot 172**

Dear Ms. Slade:

Enclosed is Cellco Partnership d/b/a Verizon Wireless' application for special permit and eligible facilities request for the replacement and collocation of wireless communications transmission equipment on the existing tower located on the Property.

I enclose one (1) original and eleven (11) sets of application materials containing the following:

- Application for Special Permit
- Letter of Authorization from Crown Castle (no original)
- Statement in Support of Application for Special Permit
    - Exhibit 1: Hearing and Decision from Truro Planning Board, recorded in the Barnstable Registry of Deeds in Book 13790, Page 306
    - Exhibit 2: Memorandum of Wireless Communications Facilities Lease Agreement, recorded in the Barnstable Registry of Deeds in Book 14863, Page 196

- Exhibit 3: Structural Analysis Report, dated September 30, 2015, by Jacobs Engineering Group, Inc.

- Site Plans, titled "Truro_MA_HD AWS Upgrade" by Turning Mill Consultants, last revision dated September 25, 2015 (no original)

- Certified Abutters List, dated December 28, 2015

I also enclose a check in the amount of $50.00 for payment of the application filing fee. Please stamp these copies received and deliver to the Truro Planning Board. Please also acknowledge receipt of the application materials by date-stamping the enclosed copy of the application form and return to me in the enclosed Fed Ex envelope.

This application is submitted with a full reservation of Applicant's rights under all applicable federal, state and local laws and regulations.

If you have any questions or concerns regarding this matter, please do not hesitate to contact me directly.

Sincerely,

Michael S. Giaimo

Enclosures

Copy to: Tim Yee, Structure Consulting Group (with enclosures) (via email)

Office of Town Clerk
Treasurer – Tax Collector
JAN 27 2016
Received TOWN OF TRURO
By

Robinson+Cole
Operating Account

LAW OFFICES
One Boston Place
Suite 2500
Boston, MA 02108-4404

BANK OF AMERICA

51-57/119

Check Number **254134**

Date: January 26, 2016

Pay: Fifty and 00/100********** $ ***50.00***

Void after 180 Days

PAY TO THE ORDER OF: TOWN OF TRURO
24 TOWN HALL ROAD
P.O. BOX 2030
TRURO, MA 02666

⑈000254134⑈ ⑆011900571⑆ 000000154546⑈

Payee: TOWN OF TRURO
Vendor ID: TOWNOFTR

Check #: 254134
Check Date: 01/26/2016

Memo: Special permit filing fee / 19247.0428

Invoice Num	Session Date	Invoice Date	Narrative	Invoice Amount
012616	1/26/2016	01/26/2016		$50.00
			Invoice Totals:	$50.00

Office of Town Clerk
Treasurer – Tax Collector
JAN 27 2016
Received TOWN OF TRURO
By

Pd. in full

RECEIVED
DEC 28 2015
ASSESSOR'S OFFICE
TOWN OF TRURO

TOWN OF TRURO
ASSESSORS OFFICE

CERTIFIED ABUTTERS LIST REQUEST FORM

DATE: 12/22/2015

NAME OF APPLICANT: Cellco Partnership d/b/a Verizon Wireless

NAME OF AGENT (if any): Michael S. Giaimo, Esq.

MAIL ADDRESS: Robinson & Cole LLP One Boston Place, 25th Floor, Boston, MA 02108

PHONE: **HOME** _____

WORK 617-557-5900

CELL _____ **FAX** 617-557-5999

PROPERTY LOCATION: 344 Route 6
(street address)

PROPERTY IDENTIFICATION NUMBER: **MAP** 39 **PARCEL** 172

ABUTTERS NEEDED FOR:

(Please check one)	FEE	FEE:		
___ Board of Health	$10.00		Planning Board	
___ Cape Cod Comm.	$15.00		X Special Permit	$15.00
___ Conservation Comm.	$10.00		___ Site Plan	$15.00
___ Zoning Bd. Of Appeals	$15.00		___ Preliminary Subdivision	$15.00
___ Licensing	$15.00		___ Definitive Subdivision	$15.00

___ Other _____ $_____
(Please Specify) (Inquire)

Note: We have up to 10 calendar days to process your order.

THIS SECTION FOR ASSESSORS OFFICE USE ONLY

Date request received by Assessors: 12/28/15 Date completed: 12/28/15

List completed by: F. COCO

Revised 3/3/14

TOWN OF TRURO

ASSESSOR'S OFFICE

P.O. Box 2012, Truro, MA 02666

Tel. 508-349-7004, Ext. 15+16+17 Fax 508-349-5506

Date: 12/29/15

To: Planning Board

From: Assessor's Office

Attached is a list of abutters for the property located at 344 Rt. 6 on Assessor's Map 39 Parcel 172. The current owner(s) as of 12/14/15 is/are Town of Truro, MA *.

The names and addresses of the abutters are as of 12/14/15 according to the most recent documents received from the Barnstable County Registry of Deeds.

Certified by: Frances M. Coco

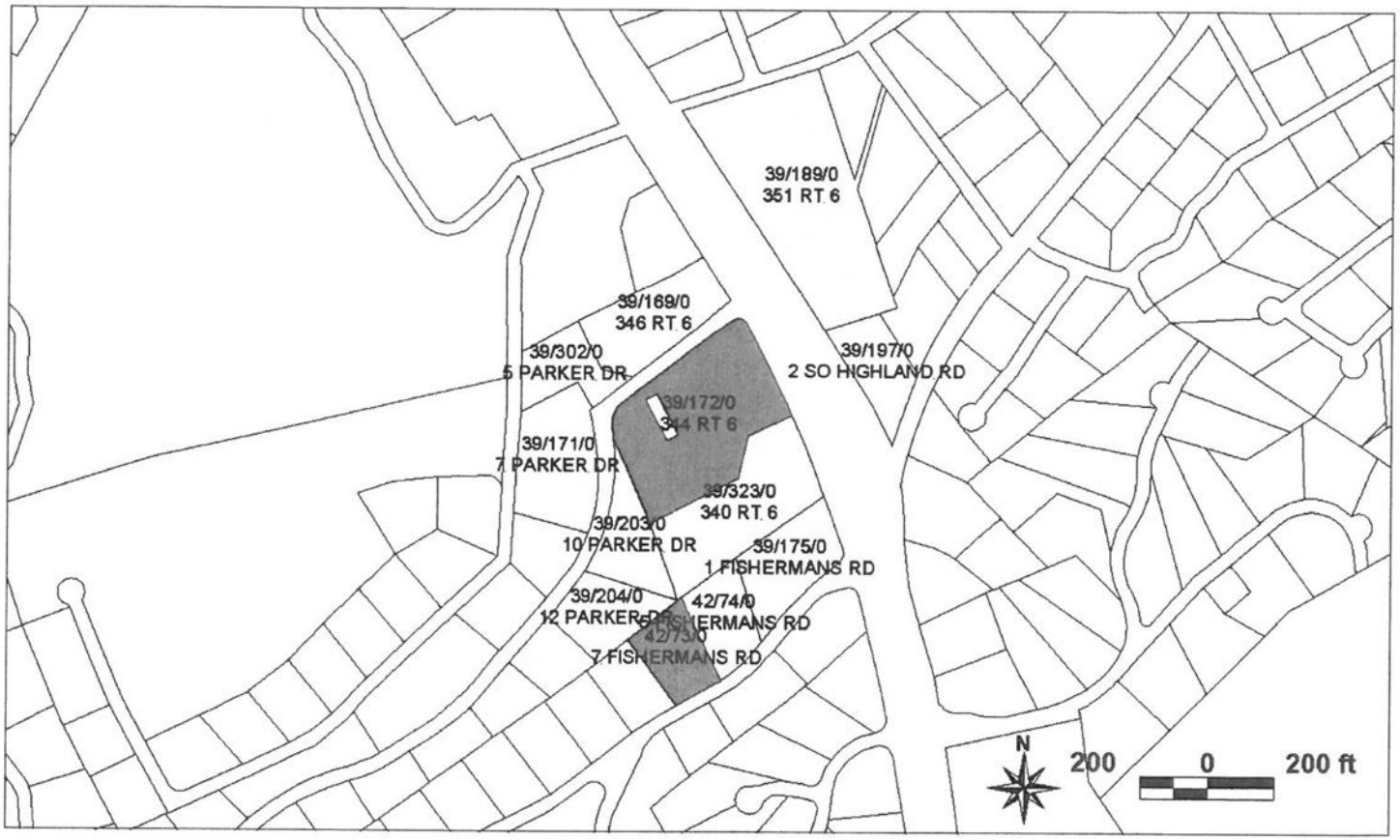
Frances M. Coco
Assistant Deputy Assessor

* Applicant is Cellco Partnership d/b/a Verizon Wireless

TOWN OF TRURO, MA
BOARD OF ASSESSORS
P.O. BOX 2012, TRURO MA 02666

To: Planning Board

Custom Abutters List for 344 Rt. 6 (Parcel ID 39-172)



Key	Parcel ID	Owner	Location	Mailing Street	Mailing City	ST	ZipCd/Country
1293	39-169-0-R	SEAMENS BANK	346 RT 6	221 COMMERCIAL ST	PROVINCETOWN	MA	02657
1294	39-171-0-R	WESTVIEW COURT REALTY TRUST TRS: TRIBUNA MICHAEL A JR & SR	7 PARKER DR	192 MILTON ST	WOLLASTON	MA	02170-2504
1295	39-172-0-E	TOWN OF TRURO	344 RT 6	PO BOX 2030	TRURO	MA	02666-2030
1296	39-172-A-R	SOUTHWESTERN BELL MOBILE SYSTE D/B/A CINGULAR WIRELESS	344 RT 6	C/O AT&T NETWORK RE ADMINISTRA 575 MOROSGO DR NE #13F W.TOWER	ATLANTA	GA	30324
1299	39-175-0-R	SWAN ABIGAIL G & GALLIGAN ROBERT W JR	1 FISHERMANS RD	PO BOX 175	TRURO	MA	02666-0175
1310	39-189-0-E	TOWN OF TRURO	351 RT 6	PO BOX 2030	TRURO	MA	02666-2030
1318	39-197-0-R	QUIST JAYSON C	2 SO HIGHLAND RD	PO BOX 1003	TRURO	MA	02666-1003
1324	39-203-0-R	COHEN JENNIFER S	10 PARKER DR	110 W 96TH ST #11A	NEW YORK	NY	10025
1325	39-204-0-R	MOSS FRED & MARTHA TRUST TRS: MOSS FREDERIK & MARTHA	12 PARKER DR	4200 RIDGE RD	DALLAS	TX	75229-6332
1421	39-302-0-R	LANDY MARGARET	5 PARKER DR	3315 CALLE DEL SUR	CARLSBAD	CA	92009
6429	39-323-0-E	TOWN OF TRURO	340 RT 6	PO BOX 2030	TRURO	MA	02666-2030
1644	42-73-0-R	ROGERS THOMAS M & MARR PAUL R	7 FISHERMANS RD	PO BOX 718	PROVINCETOWN	MA	02657
1645	42-74-0-R	DOWNING VANESSA A & NOLETTE JENNIFER M	5 FISHERMANS RD	PO BOX 424	PROVINCETOWN	MA	02657

TOWN OF TRURO
PLANNING BOARD

STATEMENT IN SUPPORT OF APPLICATION FOR SPECIAL PERMIT

Applicant:	Cellco Partnership d/b/a Verizon Wireless (f/k/a Bell Atlantic Mobile of Massachusetts Corporation, Ltd.)
Applicant's Address:	118 Flanders Road, 3rd Floor Westborough, MA 01581
Applicant's Representative:[1]	Michael S. Giaimo, Esq. Robinson & Cole LLP One Boston Place Suite 2500 Boston, MA 02108-4404 (617) 557-5959 mgiaimo@rc.com
Locus Address:	344 Route 6 Truro, MA 02666
Map and Parcel:	Assessor Map 39, Lot 172
Date:	January 26, 2015

REQUEST FOR RELIEF

With full reservation of its rights under Section 6409(a) of the federal Middle Class Tax Relief and Jobs Creation Act of 2012 (the "Spectrum Act") and other applicable law, the Applicant seeks a special permit or other appropriate relief from the Planning Board (the "Board") of the Town of Truro Massachusetts (the "Town" or "Truro") for the replacement and collocation of wireless communications equipment on the existing 170-foot tall tower located at 344 Route 6 in Truro (the "Tower"). As depicted on the plans titled "Truro_MA-HD AWS Upgrade" with a last revision date of 09/25/15, prepared by Turning Mill Consultants, Inc. (the "Site Plan", enclosed herewith), the Applicant proposes to replace nine of the twelve existing antennas and relocate one of the antennas on the existing mounting structure at the 130-foot level; collocate three remote radio heads ("RRHs") and two junction boxes at the 130-foot level; and add two hybrid flex lines on the existing cable ladder to connect the antennas with the existing equipment room (collectively, the "Installation"). The proposed Installation will be a personal wireless services facility within the meaning of the Telecommunications Act, 47 U.S.C. § 332 (c)(7)(C)(ii) and an "eligible facilities request" under the Spectrum Act.

[1] Please direct all correspondence in this matter to the Applicant's Representative.

BACKGROUND

Cellco Partnership d/b/a Verizon Wireless ("Verizon Wireless" or "Applicant") provides wireless communications services to Truro and surrounding areas of Massachusetts as part of its nationwide wireless network, under licenses issued by the Federal Communications Commission ("FCC"). Verizon Wireless is a subtenant of Crown Castle ("Crown"), owner of the Tower. Crown succeeded Sprint Spectrum as tenant under the ground lease with the Town of Truro.[2]

The Tower was originally approved by Special Permit of the Truro Planning Board on May 19, 2000, recorded in the Barnstable Registry of Deeds in Book 13790, Page 306 (the "Tower Permit"). A copy of the Tower Permit is attached as **Exhibit 1**. Attached as **Exhibit 2** is a copy of the Memorandum of Lease for the site between the Town of Truro and Sprint Spectrum, L.P. (the original special permit applicant) with plans of the Tower attached, depicting Verizon Wireless' (then known as Bell Atlantic Mobile) antennas.

APPLICABLE LAW – SECTION 6409(A) OF THE SPECTRUM ACT

The Spectrum Act states, in pertinent part, "[n]otwithstanding section 704 of the Telecommunications Act of 1996 [codified as 47 U.S.C. § 332(c)(7)] or any other provision of law, a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station" (emphasis added). The FCC has amended the Code of Federal Regulations to implement the Spectrum Act by adding Subpart CC to Part 1 of 47 C.F.R. (the "Regulations"). These Regulations took effect on April 8, 2015.

Pursuant to these Regulations, an "eligible facilities request" means "any request for modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station, involving…collocation of new transmission equipment; removal of transmission equipment; or replacement of transmission equipment."[3]

Under the regulations, a "tower" is any structure built for the sole or primary purpose of supporting FCC licensed or authorized antennas and their associated facilities,[4] and "transmission equipment" includes not only antennas but also all "equipment that facilitates transmission" for a FCC-licensed or authorized wireless communication service, such as "radio transceivers, antennas, coaxial or fiber-optic cable, and regular and backup power supply."[5] A tower is "existing" for purposes of the Spectrum Act "if it has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process."[6] "Collocation" is defined as "[t]he mounting or installation of transmission equipment on an eligible support structure for the purpose of transmitting and/or receiving radio frequency signals for communications purposes."[7]

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[2] Please see the attached letter from Crown Castle, authorizing Verizon Wireless to make this application.
[3] 47 C.F.R. § 1.40001(b)(3).
[4] 47 C.F.R. § 1.40001(b)(9).
[5] 47 C.F.R. § 1.40001(b)(8).
[6] 47 C.F.R. § 1.40001(b)(5).
[7] 47 C.F.R. § 1.40001(b)(2).

A facility does not "substantially change" the physical dimensions of a tower if it (i) does not increase its height by more than 10 percent; (ii) does not protrude from the edge of the structure by more than 20 feet or more than the width of the tower at the level of the equipment, whichever is greater; (iii) does not involve the installation of more than the standard number of cabinets for the technology involved; (iv) does not entail any excavation or deployment outside of the current site; (v) defeats any concealment elements of the structure; or (vi) does not comply with siting approval conditions of the support structure.[8]

Pursuant to Section 1.40001(c)(1) of the FCC Regulations, an applicant asserting that a "request for modification" is covered by the Spectrum Act may be required to submit "documentation or information only to the extent reasonably related to determining whether the request meets the requirements of [the Spectrum Act]." Section 1.40001(c)(1) further states that a state or local government "may not require an applicant to submit any other documentation, including but not limited to documentation intended to illustrate the need for such wireless facilities or to justify the business decision to modify such wireless facilities."[9] The Regulations also establish a sixty (60) day review window for the local government to act on an eligible facilities request.[10]

FACTS

The proposed Installation is an "eligible facilities request" entitled to approval within sixty days, pursuant to the Spectrum Act and the FCC Regulations because:

(1) the existing Tower at 344 Route 6 is a "tower" within the meaning of the FCC regulations, as it was constructed for the purpose of supporting wireless communications equipment and it currently supports wireless communications equipment;

(2) the Tower is "existing" because it was reviewed under the Truro Zoning Bylaw and authorized by the Tower Permit. (The plans approved under the Tower Permit depict the Bell Atlantic Mobile (n/k/a Verizon Wireless) installation on that Tower at the 130-foot elevation.);

(2) the proposed replacement of existing antennas constitutes a "replacement of transmission equipment;"

(3) the proposed addition of RRHs, junction boxes, and cables constitutes a "collocation of new transmission equipment;" and

(4) the proposed modification does not "substantially change the physical dimensions" of the tower. The proposed modification does not constitute a "substantial change" as defined under the FCC Regulations because it:

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[8] 47 C.F.R. § 1.40001(b)(7).
[9] For this reason, the Applicant also seeks waivers of various requirements of Section 40.5 of the Truro Zoning Bylaw, as discussed below.
[10] 46 C.F.R. § 1.40001(c)(2).

(i) does not involve the installation of more than the standard number of equipment cabinets (***no equipment cabinets are being added***);
(ii) does not entail excavation or deployment outside of the current site (*all changes are taking place to the installation on the tower itself and within the existing equipment compound*);
(iii) does not defeat the concealment elements of the Tower (***the new antennas will be painted to match the Tower and existing antennas and the new cables will be black, in accordance with the requirements of the Tower Permit***);
(iv) does not increase the height of the Tower by more than 10% (*there will be no increase in height*);
(v) does not add any appurtenances that would protrude from the Tower by more than twenty feet or more than the width of the Tower at the level of the equipment (***the replaced antennas will be located at the same distance from the Tower, and on the same mounting structure, as the current antennas and the RRHs and junction boxes will be located closer to the Tower than the existing antennas***); and
(vi) complies with the siting approval conditions imposed by the Town of Truro through the Tower Permit (***the conditions imposed in the Tower Permit that are relevant to this upgrade request are satisfied, in that the antennas will be, painted grey to match the Tower, and the cables will be black).***

ZONING BYLAW SPECIAL PERMIT REQUIREMENTS

Under the Spectrum Act and Regulations, the Applicant proposing an eligible facilities request is not subject to local zoning standards or required to provide information beyond what is reasonably required for the purpose of confirming that the standards for an eligible facilities request are satisfied.

Nonetheless, and will full reservation of Verizon Wireless' rights under this federal law, the Installation is fully consistent with the standards that Section 40.5 of the Zoning Bylaw requires for communications appurtenances. Section 40.5.B.1 of the Truro Zoning Bylaw (the "Zoning Bylaw") requires that all building permits for a communication structures, buildings, or appurtenances also have a special permit from the Truro Planning Board. The criteria the Planning Board may evaluate when considering a special permit application principally concern the location of a wireless communications structure. No new structure is being proposed. The criteria of the Zoning Bylaw specifically applying to appurtenances are:

- The appurtenance shall be installed, maintained and operated in accordance with all applicable federal, state , county and local codes, standards and regulations and shall be designed to withstand sustained winds and gusts of a category 5 hurricane. (Section 40.5.B.3) ***The details shown in the Site Plan and the Structural Analysis Report (attached as Exhibit 3) demonstrate that the antennas and other telecommunications equipment will be installed in accordance with building code requirements and that the Tower can support the Installation without failure.***

- The appurtenance shall be designed to minimize visual impact. (Section 40.5.B.9) ***The proposed changes to the Tower will not change the visual impact of the existing structure and appurtenances, as the new transmission equipment will be located at the same height, the same distance from the Tower, and will be painted to blend with the existing structure.***
- Under normal conditions, noise emanating from the appurtenance shall not be greater at the boundary of the lot on which it is sited than it would in the absence of the facility. (Section 40.5.B.11) ***The Installation will not change the noise levels from existing conditions. No new noise-producing equipment is being added.***
- No hazardous waste shall be discharged on the site and any storage of fuel shall be in compliance with Board of Health regulations. (Section 40.5.B.12) ***No discharge of hazardous waste or change to fuel storage is being proposed.***
- All run-off of storm water from appurtenances shall be contained on site. (Section 40.5.B.13) ***No ground-based appurtenances are being added and there are no proposed changes that will increase impervious surfaces or change the amount of, or method of handling, storm water run-off.***
- All lighting, when required or permitted, shall be directed inward toward the project. (Section 40.5.B.14) ***No lighting is being added or changed.***
- All appurtenances must be secured to control access. (Section 40.5.B.15) ***appurtenances on the tower will remain inaccessible except to authorized contractors. No changes are proposed to existing controls on access to the Tower and ground compound.***

The purpose of the Section 40.5 is to facilitate the provision of wireless telecommunications services to the residents and businesses of the town; to minimize adverse visual effects; to avoid potential damage to adjacent properties caused by tower failure; and to maximize the use of existing and approved towers to accommodate new wireless telecommunications antennas.[11] The Installation is part of an ongoing upgrade of the Verizon Wireless network throughout this region which, in furtherance of the purposes of Section 40.5, will improve wireless telecommunications to the residents and businesses in Truro, while continuing to minimize visual impact in accordance with the previous Town approvals.

The Installation not only meets the eligible facilities request standard— and therefore "shall be" approved under the Spectrum Act—it also meets the standards that the Board would otherwise ordinarily consider when hearing an application for a special permit under Section 40.5 of the Zoning Bylaw, and is in keeping with the purposes of the Zoning Bylaw.

WAIVER REQUEST

Section 40.5.B.24 of the Zoning Bylaw permits the Planning Board to waive any part of the Zoning Bylaw when such a waiver would not be detrimental to the public interest, cause the Town any expense, or be inconsistent with the intent and purpose of the Zoning Bylaw. Pursuant

[11] Truro Zoning Bylaw, §40.5A.

to this section, and consistent with the provisions of the Spectrum Act and regulations which preclude the Town from requesting information other than that reasonably necessary for determining whether the standards for an "eligible facilities request are satisfied," the Applicant requests that the Planning Board waive the following provisions, to the extent that they would otherwise be relevant to this application:

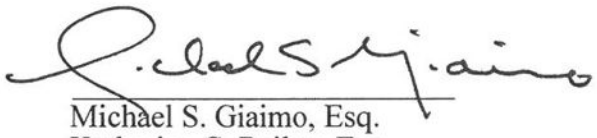
- Section 40.5.B.17, requiring an informal meeting between the applicant and the Board at least 45 days prior to submitting an application. The pre-application meeting appears to be targeted primarily at new structures, buildings, or appurtenances and intended to allow the Board to become familiar with the proponent and the site. In this case a modification of an existing appurtenance is being proposed and the site has been in existence on town-owned land for decades. Further, the timing of the required pre-application meeting would cause this application to exceed the sixty (60) day review period imposed on eligible facilities requests. The waiver of this requirement would not be detrimental to the public interest or be inconsistent with the intent or purpose of the Zoning Bylaw because the this is an existing site for which the Applicant seeks a minor modification that is plainly authorized by federal law.
- Section 40.5.B.19, to the extent required by this application, specifying written information to be submitted to the Board. These requirements appear to only be applicable to new locations of wireless communications facilities. Moreover, they are inconsistent with the limitations imposed on what a town may require when considering an eligible facilities request. It will not be detrimental to the public interest or inconsistent with the Zoning Bylaw to waive this provision, because this information was already reviewed when the Tower was initially approved under the special permit process.
- Section 40.5.B.20(a), requiring a draft contract with the site owner requiring removal of all structures and complete site restoration. The contract for this site is already in place and was approved under the terms of the Zoning Bylaw. Any requirements of that contract have already been addressed by the Board.
- Section 40.5.B.20(c) and (d), requiring a site plan showing the proposed facility, fall zones, existing and proposed contour elevations, 100-year flood zones, water resources, Zones of Contribution, waterways, wetlands and all associated equipment and structures on the site and requiring a landscape plan before and after development, including proposed screening to protect abutters. The only modifications to the site are being made on the Tower itself and within the existing equipment compound. Nothing is being changed on the ground. The Applicant has submitted plans showing the elevation of the Tower and the equipment compound and detailing the proposed Installation. The waiver of these plan requirements will not be detrimental to the public interest or be inconsistent with the Zoning Bylaw because the Installation does not implicate any of the specified features.

CONCLUSION

For all the foregoing reasons, Verizon Wireless respectfully requests that the Board authorize the proposed Installation as an eligible facilities request under the Spectrum Act and its implementing regulations. Verizon Wireless also submits that the Installation meets the applicable criteria for approval under Section 40.5 of the Truro Zoning Bylaw and, to the extent

required and not preempted by federal law, the Board should grant a special permit under the Zoning Bylaw to authorize the Installation, and should waive the information requirements as noted above. In making this request, Verizon Wireless reserves all of its rights under applicable federal, state, and local law.

Respectfully submitted,
Cellco Partnership d/b/a/ Verizon Wireless
by its attorney,



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Truro Planning Board

TRURO, MASSACHUSETTS

HEARING AND DECISION

On May 17, 2000, the Truro Planning Board held a public hearing on the application of Sprint Spectrum, L.P. (hereinafter, "Sprint") and Nextel Communications of the Mid-Atlantic, Inc. (hereinafter, "Nextel") for a Special Permit pursuant to Section VIII of the Truro Zoning Bylaw, the Truro Zoning Bylaw for Communication Towers, for the siting of a tower at the Truro Public Safety Facility Site, 344 Route 6, North Truro, Massachusetts. Sprint sought approval to replace an existing 150 foot co-location lattice style tower with a comparative 170 foot lattice style tower with a design to allow for future expansion of said tower to 190 feet and associated base station equipment for use as a PCS communications facility. Nextel sought approval of the Board to construct its associated base station equipment at the site.

The Board heard the application with the following members sitting and deliberating: Chairman Paul Kiernan, Russell Weldon, Kathleen Crosby, Christopher Lucy, and Nicholas Brown.

After the hearing, the Truro Planning Board unanimously adopted (5-0) the following Findings of Fact:

1. Pursuant to the provisions of the Truro Zoning Bylaw for Communication Towers, Section VIII(L)(2)(a), the building permit for the cellular communications tower and associated base equipment proposed by Sprint Spectrum L.P. requires a special permit from the Planning Board. Pursuant to the provisions of the Truro Zoning Bylaw for Communication Towers, Section VIII(L)(2)(a), the building permit for Nextel's associated base station equipment requires a special permit, as well.

2. The proposed tower at 170 feet will have a 122 foot side setback and a 150 foot back lot line setback. As proposed, therefore, the tower does not meet the minimum setbacks contained in Subsection (b) of said Bylaw. The proposed tower will replace an existing 150 foot tower constructed prior to the adoption of the bylaw, when no minimum setbacks were required. The concerns for the "fall zone" stemmed from the possible impact from hurricane force winds and the potential of "ice fall" off the tower. The Board finds there are no reported incidents of tower failure due to hurricanes or experiences of "ice fall" off towers in the Massachusetts area and that the Truro Police Chief indicates there have been no incidents of "ice fall" off the existing tower. Furthermore, the Board finds that the tower's location next to the police station minimizes remaining public safety concerns in that the police can monitor any "ice fall" and protect the public from encountering it. The Board finds that pursuant to Subsection (x) of said Bylaw, a waiver of Subsection (b) is appropriate.

3. The proposed tower will meet the requirements of Subsection (c) of said Bylaw in that it will be installed, maintained and operated in accordance with all applicable federal, state, county and local codes, standards and regulations; it will be manufactured to withstand winds and gusts of a category 5 hurricane; and the permit holder shall bring the structure into compliance with any new or amended federal, state, country and local codes, standards and regulations within six (6) months of their promulgation.

4. The proposed structure is a 170 foot lattice-style tower with a design to allow for future expansion to 190 feet. Therefore, the proposed structure exceeds the maximum height requirements contained in Subsection (d) of said Bylaw. The Board finds that the proposed tower will replace an existing 150 foot tower while accommodating all cellular communications companies who wish to conduct business in the Town of Truro, thereby complying with the 1996 Federal Telecommunications Act and eliminating the possible proliferation of towers throughout the Town. The Board found that the Town specifically sought proposals for the Truro Public Safety Facility site because there was already an existing tower in that location and, therefore, construction of a new slightly taller tower would have the least impact on the community while reducing the number of towers needed to service the community. The Board finds that pursuant to Subsection (x) of said Bylaw, a waiver of Subsection (d) is appropriate.

5. The Board finds that applicants have demonstrated that there are no feasible pre-existing structures on which they could co-locate in accordance with Subsection (e) of said Bylaw.

6. The Board finds that the site for the proposed tower is owned by the Town of Truro in accordance with Subsection (f) of said Bylaw.

7. Pursuant to the provisions of Subsection (g) of said Bylaw, the Board finds that proposed tower shall accommodate the number of cellular communications providers who presently express a desire to do business in the Town of Truro, and contains an optional twenty (20) foot expansion which can be utilized in the future to accommodate the maximum number of foreseeable users, with further Truro Planning Board and Cape Cod Commission permission.

8. Pursuant to the provisions of Subsection (h) of said Bylaw, the Planning Board finds that the existing facility at the proposed site cannot accommodate the number of cellular communications providers who presently express a desire to do business in the Town of Truro. The proposed tower will have the capacity to accommodate these providers.

9. Pursuant to the provisions of Subsection (i) of said Bylaw, the Board finds that the new tower is designed to minimize the visual impact on the surrounding area, to disturb the least amount of existing vegetation in the area, to blend with the surroundings, and includes additional vegetative screening. Fencing and tree plantings shall be done in accordance with the notations on the plans submitted with the application and entitled, "Sprint Spectrum, L.P., Site ID# BS13XC597B3, Truro, Cell One Police Tower, 344 Route 6, North Truro, MA 02666," as prepared by Clough, Harbour & Associates, LLP, 450 Cottage Street, Springfield, MA 01104, dated November 1999, and as modified and approved by the Truro Planning Board at its hearing held April 19, 2000.

10. Pursuant to Subsection (j) of said Bylaw, the Board finds there is no mandatory regional and siting criteria established by the Cape Cod Commission for a tower of 170 feet at this location. The Board finds that pursuant to Subsection (x) of said Bylaw, a waiver of Subsection (j) is appropriate.

11. Pursuant to the provisions of Subsection (k) of said Bylaw, the Board finds that the proposed tower will generate noise, but that there will be no significant increase in noise over levels emanating from the current tower. The Board finds that the noise complaints stemming from the existing tower originated as a result of loose equipment, pipes and wires. The Board finds that noise on the proposed tower shall be minimized by cutting vertical mount pipes flush or below the antenna panel, capping the mount pipes, bundling wires where feasible, and utilizing other noise abatement measures where feasible. The Board finds that pursuant to Subsection (x) of said Bylaw, a waiver of Subsection (k) is appropriate.

12. Pursuant to the provisions of Subsection (l) of said Bylaw, and as required in the Lease Agreement for this site, the Board finds that no hazardous, inflammable, combustible or explosive fluid, material, chemical or substance, except standard cleaning fluid and the minimum necessary amount of fuel and /or batteries necessary for the operation of the emergency generators and/or ground based equipment is proposed to be brought onto or permitted on the site. The Board finds that documentation shall be provided for the contents of all communication buildings and/or cabinets.

13. Pursuant to the provisions of Subsection (m) of said Bylaw, the Board finds that all run-off of storm water from communication structures, buildings and appurtenances, driveways and parking areas is proposed to be contained on site. The amount of impervious surfaces shall be minimized by the installation of a crushed stone surface in the tower yard.

14. Pursuant to the provisions of Subsection (n) of said Bylaw, the Board finds that the FAA does not require lighting of a 170 or 190 foot tower. The Board finds that Sprint and Nextel propose to install lighting for maintenance purposes only and that all such lighting shall be directed inward so as not to project onto surrounding properties and shall be shielded.

15. Pursuant to the provisions of Subsection (o) of said Bylaw, the Board finds that all structures, buildings and appurtenances shall be secured to control access by the installation of a locked fence, six (6) feet in height, with appropriate warning signals which shall alert the applicant to any unauthorized entries. A sign displaying the name of the owner and a 24-hour emergency contact telephone number will be visibly mounted on the fencing.

16. Pursuant to the provisions of Subsection (p) of said Bylaw, a covenant regarding the removal of the structure after four months of nonuse shall be executed. The Board finds that pursuant to Subsection (x) of said Bylaw, a waiver of the portion of Subsection (p) requiring a bond is appropriate as a bond is already required under the terms of the Lease Agreement with the Town.

17. Pursuant to the provisions of Subsection (q) of said Bylaw, the applicant met with the Planning Board for a pre-hearing consultation on December 1, 1999.

18. Pursuant to the provisions of Subsection (r) of said Bylaw, the Planning Board held a public hearing within 65 days of the filing of the application and shall issue its decision within 90 days of the hearing.

19. Subsection (s)(1) and (2) of said Bylaw require the submission of certain surveys concerning the siting of this proposed tower. The Board finds that no such surveys were submitted nor required by the Board. The Board finds the Town of Truro solicited proposals specifically for the Truro Public Safety Facility Site. The Board finds that pursuant to Subsection (x) of said Bylaw, a waiver of Subsection (s)(1) and (2) is appropriate.

20. Pursuant to the provisions of Subsection (s)(3) of said Bylaw, the applicant has not submitted a Microwave propagation analysis showing the current frequency and intensity of radiation at ground level and at 30 feet above ground level. The Board finds that Sprint shall test the radio frequency emissions before and after the construction of the tower and shall reimburse the Town of Truro for its actual costs in an amount not to exceed $2,000 annually, as adjusted by an escalation factor, to conduct annual radio frequency emissions testing and monitoring for purposes of comparing the results of the Monitoring to applicable Federal Communications Commissions ("FCC") standards, in accordance with Condition 8 set forth below. The Board finds that pursuant to Subsection (x) of said Bylaw, a waiver of Subsection (s)(3) is appropriate.

21. Pursuant to the provisions of Subsection (s)(4) of said Bylaw, the applicant must submit certain surveys regarding estimated sound levels emanating from the structure. The Board finds that such surveys were not provided or required by the Board. The Board finds that distinguishing and measuring the sound levels emanating from the tower as separate levels from those sounds associated with wind, tree and traffic noise heard at the perimeter of this particular site is complex and perhaps infeasible. The Board finds that the proposed design for this structure utilizes methods to minimize noise levels on the tower by cutting vertical mouth pipes flush or below the antenna panel, capping the mount pipes to minimize any additional wind noise resulting from the increased number of antennas on the tower, bundling the wires where feasible, and incorporating further noise abatement measurements where feasible. The Board finds that Sprint shall take benchmark measurements of the sound levels emanating from the tower at the four major compass points on the site both before and after tower construction. The Board finds that pursuant to Subsection (x) of said Bylaw, a waiver of Subsection (s)(4) is appropriate.

22. Pursuant to the provisions of Subsection (s)(5) of said Bylaw, the applicant must delineate all areas in Truro not served by the proposed installation for this site and an alternative site. No such delineation was made or required by the Board. The Board finds that the Town specifically sought proposals for the Truro Public Safety Facility Site. The Board finds that pursuant to Subsection (x) of said Bylaw, a waiver of Subsection (s)(5) is appropriate.

23. Pursuant to the provisions of Subsection (s)(6) of said Bylaw, the applicant has submitted a statement of the services to be supported by the proposed facility.

24. The applicant has submitted the plans required pursuant to the provisions of Subsection (s)(7) of said Bylaw.

25. Pursuant to the provisions of Subsection (s)(8) of said Bylaw, the Board finds that all of the federal filing required for this site have been submitted by Sprint. The Board finds that Sprint's Massachusetts Department of Public Health (MDPH) filing is currently pending and that it cannot operate until this filing is approved. Nextel's MDPH filing is approved and has been filed with the Board.

26. Pursuant to the provisions of Subsection (s)(9) of said Bylaw, the applicant is required to fly a three-foot-diameter balloon at the primary and alternate site. The Board finds that given the existing tower, the balloon test would not be beneficial. A photo simulation depicting the completed tower was submitted by the applicant and the Board has determined that the proposed tower will not have any further visual impact on the area than the existing tower. The Board finds that pursuant to Subsection (x) of said Bylaw, a waiver of Subsection (s)(9) is appropriate.

27. The applicant submitted all documents required pursuant to the provisions of Subsection (t) of said Bylaw.

28. The Board finds that Subsection (u) of said Bylaw is inapplicable to this application.

29. The Board finds that all plans submitted in connection with the application were certified by an appropriate licensed professional, pursuant to Subsection (v) of said Bylaw.

30. Pursuant to Subsection (w) of said Bylaw, the Board did not feel referrals to the Board of Health, Zoning Board of Appeals or Conservation Commission were required in this instance.

31. Pursuant to Subsection (y) of said Bylaw, the Board finds that the Lease negotiated with the Town of Truro requires that, upon completion of the construction of the tower and the transfer of the antennas and equipment from the old tower to the new tower, the Lease shall be assigned to Southwestern Bell Mobile Systems, Inc. d/b/a CellularOne and that, as part of said assignment, Sprint shall also assign the Special Permit and all of the permissions granted therein and obligations assumed thereunder. The Board finds that pursuant to Subsection (x) of said Bylaw, a waiver of Subsection (y) is appropriate to the extent that the assignment to CellularOne is hereby permitted and that any subsequent or alternative assignments must first receive approval from the Board.

32. The Board finds, pursuant to the provisions of Subsection (x) of said Bylaw, that the waivers of Subsections (b), (d), (j), (k), a portion of (p), (s)(1), (s)(2), (s)(3), (s)(4), (s)(5), (s)(9) and (y) of said Bylaw are not detrimental to the public interest, do not cause the Town any expense, and are not inconsistent with the intent and purpose of this Bylaw.

33. The Board finds that the application of Sprint and Nextel meet the general purpose and intent of the Bylaw as expressed in Section VIII (L)(1) of said Bylaw.

Based on the approved Findings of Fact set forth above, the Board voted unanimously (5-0) to impose the following conditions upon the Special Permit:

1. The proposed tower and appurtenances shall be constructed in accordance with the provisions of Section VIII of the Truro Zoning Bylaw, the Truro Zoning Bylaw for Communication Towers.

2. The proposed tower and appurtenances shall be constructed in accordance with the plans entitled, "Sprint Spectrum, L.P., Site ID# BS13XC597B3, Truro, Cell One Police Tower, 344 Route 6, North Truro, MA 02666," as prepared by Clough, Harbour & Associates, LLP, 450 Cottage Street, Springfield, MA 01104, dated November 1999, as modified and approved by the Truro Planning Board at its hearing held April 19, 2000, and as modified by the more detailed construction drawings and approved by the Town of Truro in accordance with the provisions of the Lease Agreement.

3. The proposed tower and appurtenances shall be constructed to minimize noise levels on the tower by cutting vertical mount pipes flush or below the antenna panel, capping the mount pipes to minimize any additional wind noise resulting from the increased number of antennas on the tower, bundling the wires where feasible, and utilizing any additional noise abatement measures where feasible.

4. Sprint shall take ground level benchmark measurements of the sound levels emanating from the tower at the four major compass points on the site before tower construction and upon completion of tower construction and removal of the existing tower. Sprint shall file these measurements with the Truro Planning Board and the Truro Board of Health.

5. The tower structure and all appurtenances shall be maintained so as to minimize noise levels.

6. The permit holder shall execute a covenant to remove within six months any communication structure and building which has not operated for four consecutive months unless the cause is major damage which prohibits operation. In the event that major damage has rendered the facility inoperative, repair or removal of the facility shall begin within six months and be completed within an additional six months. Failure to comply with the conditions of the covenant shall be grounds for the removal of structures, buildings and appurtenances. Complete restoration of the site shall be at the expense of the permit holder.

7. Sprint shall, at its own cost and expense, provide Electro Magnetic Field (EMF) readings before and after the completion of the facility. Sprint shall file these readings with the Truro Planning Board and the Truro Board of Health.

8. Sprint shall reimburse the Town of Truro for its actual costs incurred for testing and monitoring the radio frequency emissions at the Site ("the Monitoring") and comparing the results of the Monitoring to applicable Federal Communications Commissions ("FCC") and Massachusetts Department of Public Health ("MDPH") standards in an amount not to exceed $2,000 annually, as increased annually by the increase, if any, in the Consumer Price Index - U.S. City Averages for Urban

Wage Earners and Clerical Workers (1982 - 84 = 100) published by the United States Department of Labor, Bureau of Labor Statistics (or a reasonably equivalent index if such index is discontinued). The reimbursement of said actual costs in an amount not to exceed $2,000 as adjusted shall be paid by Sprint within thirty (30) days of being invoiced by the Town. If the radio frequency emissions at the Site exceed FCC or MDPH standards, the Town of Truro reserves its rights in law and equity, to the extent permissible under applicable law, to seek enforcement of violations thereof. Sprint Spectrum LP's obligations under this condition shall continue and extend for the entire time period during which Sprint remains connected to the tower and shall extend beyond the contemplated transfer of ownership of the tower and assignment of Lease and Special Permit to Southwestern Bell Mobile Systems, Inc. d/b/a CellularOne.

9. The Special Permit holder shall, at its own expense, provide Electro Magnetic Field (EMF) readings immediately before and after any addition to the facility. The Special Permit holder shall also be responsible for any actual costs which exceed the not to exceed contribution of Sprint Spectrum L.P. in the amount of Two Thousand ($2,000.00) Dollars as adjusted for the required annual testing described in Condition 8 above.

10. Sprint shall construct the tower and related appurtenances so as to minimize visual impact and blend with the surroundings. In furtherance of said condition, Sprint shall construct a grey tower with a grey antenna array and grey cabinets to the extent feasible and shall utilize black cables. If technologically feasible, as determined by a design engineer, the cables shall be bundled, clustered, or otherwise designed so as to minimize visual impact and wind resistence.

After voting unanimously to impose the above-referenced conditions, the Board voted unanimously (5-0) to issue in accordance with the previously approved findings of fact and conditions set forth above, a Special Permit to Sprint Spectrum LP for the construction of a 170 foot lattice style tower with a design to allow for future expansion of said tower to 190 feet and to construct the associated base station equipment for use as a PCS communications facility, and to issue a Special Permit to Nextel Communications of the Mid-Atlantic, Inc. to construct its associated base station equipment at the site.

Members voting in favor: Chairman Paul Kiernan, Russell Weldon, Kathleen Crosby, Christopher Lucy, and Nicholas Brown.

Dated: MAY 19, 2000

Paul Kiernan, Chair

Russell Weldon

Kathleen Crosby

Christopher Lucy

Nicholas Brown

Received, Office of the Town Clerk: Signature May 19, 2000 Date

This is to certify that more than twenty (20) days have elapsed since the filing of the foregoing decision in the office of the Clerk of the Town of Truro and no appeal from said decision has been filed.

A true Copy:

Attest:

Cynthia A. Slade, Town Clerk June 9, 2000

Bk 14863 Ps196 #18097
02-27-2002 @ 09:13a

Version 5

April 99

Site Name: Truro Police, Truro, Massachusetts

Site I.D. : BS13XC597

344 Route 6, Truro, MA

Memorandum of Wireless Communications Facilities Lease Agreement

This memorandum evidences that a lease was made and entered into by written Wireless Communications Facilities Lease Agreement dated , April 19, 2002, between Town of Truro ("Town"), a Massachusetts municipal corporation with an address at Town Hall Road, Truro, Massachusetts and Sprint Spectrum L.P. ("Tenant") Delaware, a limited partnership having an address at One International Boulevard, Suite 800, Mahwah, NJ 07495.

Such Agreement provides in part that Town leases to Tenant a certain site ("Premises") located at 344 Route 6, the Town of Truro, County of Barnstable, Commonwealth of Massachusetts, which Premises are described in Exhibit A attached hereto, for an Initial Term of ten (10) years, commencing March 2, 2001 and terminating on March 1, 2011, which term shall be automatically renewed for two (2) additional five-year Renewal Terms unless Tenant provides Town notice of its intention not to renew not less than eighteen (18) months prior to the expiration of the Initial Term or any Renewal Term, together with a grant of an Easement for ingress, egress, regress and utilities over the property of TOWN adjacent to the Premises, for the installation, construction and maintenance of underground and above ground telephone, cable and power lines in connection with its use of the Premises, and for access to the Premises from Route 6. The exact location and configuration of the Easement is depicted on the Site Plan attached as Exhibit B hereto.

IN WITNESS WHEREOF, the parties have executed this Memorandum as of the day and year first above written.

"TOWN"

Town of Truro, Massachusetts, a municipal corporation

By:
Robert J. Martin
Chair, Board of Selectman

Address: Town Hall Road
Truro, Massachusetts 02666

"TENANT"

Sprint Spectrum L.P ., a Delaware limited partnership

By: Michael W. Loucy
Michael W. Loucy
Director, Site Development
Northeast Region

Address: 1 International Drive, Suite 800
Mahwah, NJ 07495

L

TOWN NOTARY BLOCK

COMMONWEAL TH OF MASSACHUSETTS

COUNTY OF BARNSTABLE

The foregoing instrument was acknowledged before me this 7th day of March, 2000, by Robert J. Martin, as Chairman of the Board of Selectman, a municipal corporation, on behalf of the Town of Truro, and he acknowledged said instrument by him executed to be his free act and deed in said capacity and free act and deed of said Town of Truro.

IAL SEAL)

Sarah A Turano Flores
(OFFICIAL NOTARY SIGNATURE)
NOTARY PUBLIC
COMMONWEALTH OF MASSACHUSETTS

My commission expires:

10-26-01 SARAH A. TURANO-FLORES
(PRINTED, TYPED OR STAMPED NAME OF NOTARY)
COMMISSION NUMBER:

STATE OF NEW JERSEY

COUNTY OF Bergen

The foregoing instrument was acknowledged before me this 19th day of April, 2000 by Michael W. Loucy, Director, Site Development- Northeast Region of Sprint Spectrum L.P., a Delaware limited partnership, who executed the foregoing instrument on behalf of such limited partnership, and he acknowledged said instrument by him executed to be his free act and deed in said capacity and the free act and deed of said Sprint Spectrum L.P .

(AFFIX NOTARIAL SEAL)

(OFFICIAL NOTARY SIGNATURE)
NOTARY PUBLIC-STATE OF NJ

MICHAEL HILL
NOTARY PUBLIC, STATE OF NEW JERSEY
No. 2216861
COMMISSION EXPIRES AUG. 17, 2003

My commission expires:

(PRINTED, TYPED OR STAMPED NAME OF NOTARY)

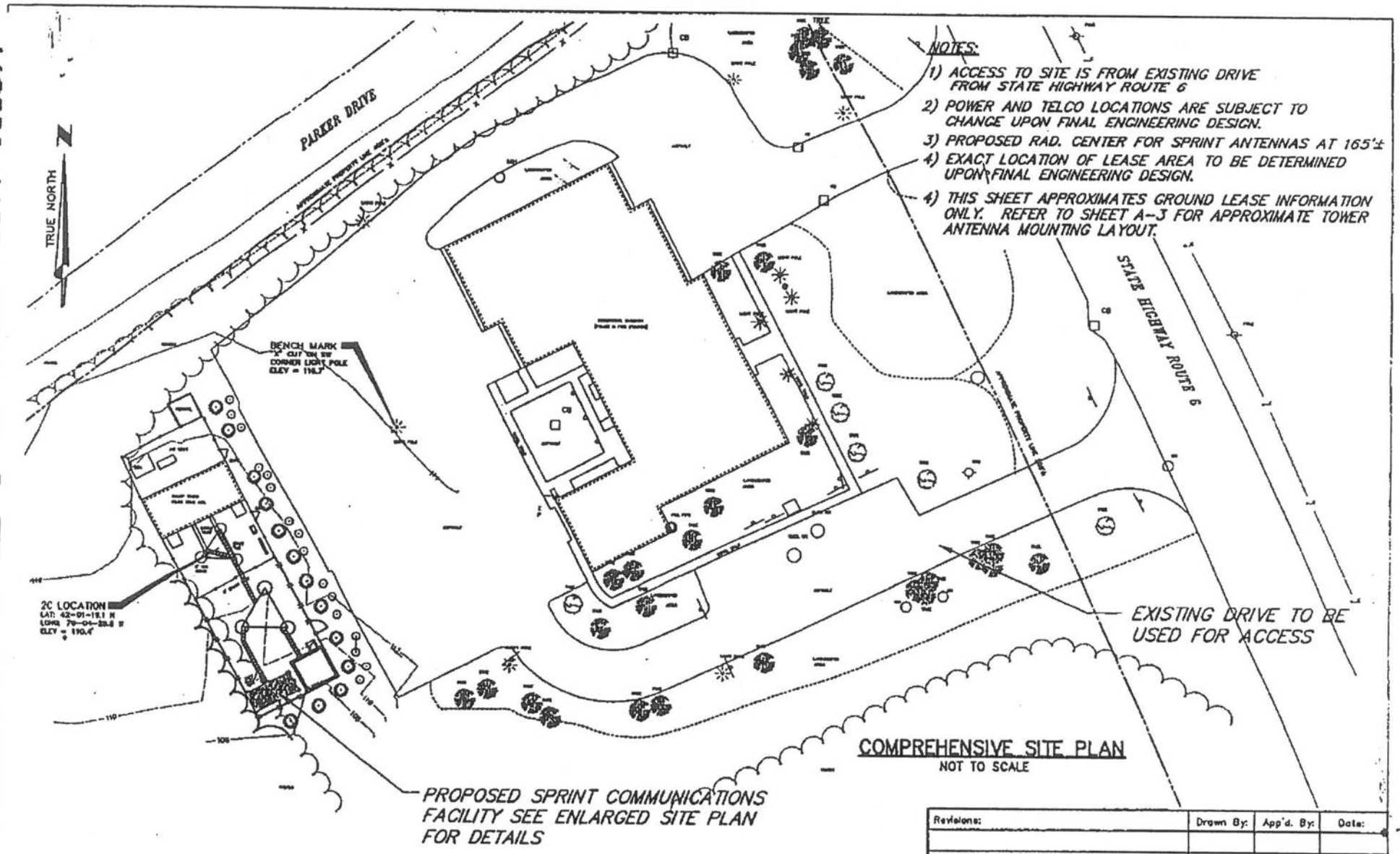
MEMORANDUM OF WIRELESS COMMUNICATIONS FACILITIES LEASE AGREEMENT

EXHIBIT A

The Premises leased by the Town to the Tenant consist of a 3,000 square foot piece of land located within a parcel of town-owned property (the "Property") located at 344 Route 6, North Truro, Massachusetts, containing approximately 6.74 acres, more or less. The Town is the owner of the Property and the Premises by virtue of an Order of Taking adopted by the Truro Board of Selectmen on June 18, 1990, recorded at the Barnstable County Registry of Deeds in Book 7197, Page 179, identified on Truro Assessor's Map 39, as Parcel 172, and shown on a plan of land entitled "Subdivision Plan of Land in Truro, Mass. As prepared for Miriam A. Fowler, Scale 1 in. = 60 ft., June 1968, Schofield Brothers Registered Civil Engineers and Land Surveyors, Orleans & Framingham, Mass.", recorded in the Barnstable County Registry of Deeds as Plan B in Tube 34A, and also shown on a plan of land entitled "Plan of Land Located in Truro, Mass. Prepared for Truro Plaza Trust," prepared by Cape & Islands Surveying Inc., 131 Spring Bars Road, Teaticket, Mass., and recorded in the Barnstable County Registry of Deeds in Plan Book 443, Page 12.

Sketch of Site:

See site plans/drawings attached hereto and incorporated herein.



COMPREHENSIVE SITE PLAN
NOT TO SCALE

Revisions:	Drawn By:	App'd. By:	Date:

Owner Initials:
Date:
SSLP Initials:
Date:

Note: Owner and SSLP may, at SSLP's option, replace this Exhibit with an exhibit setting forth the legal description of the property on which the Site is located and/or an as-built drawing depicting the Site.

Sprint Spectrum, LP
PCS INSTALLATION PROJECT

CHA
CLOUGH, HARBOUR & ASSOCIATES LLP
ENGINEERS, SURVEYORS, PLANNERS & LANDSCAPE ARCHITECTS
171 PARK AVENUE – WEST SPRINGFIELD, MA – 01090
P.O. BOX 626 413-746-0796
CHA Project No.: 7472-68

SITE #BS13XC597B3
TOWN OF TRURO
1000 RT. 6 EAST
TRURO, MA. 02666

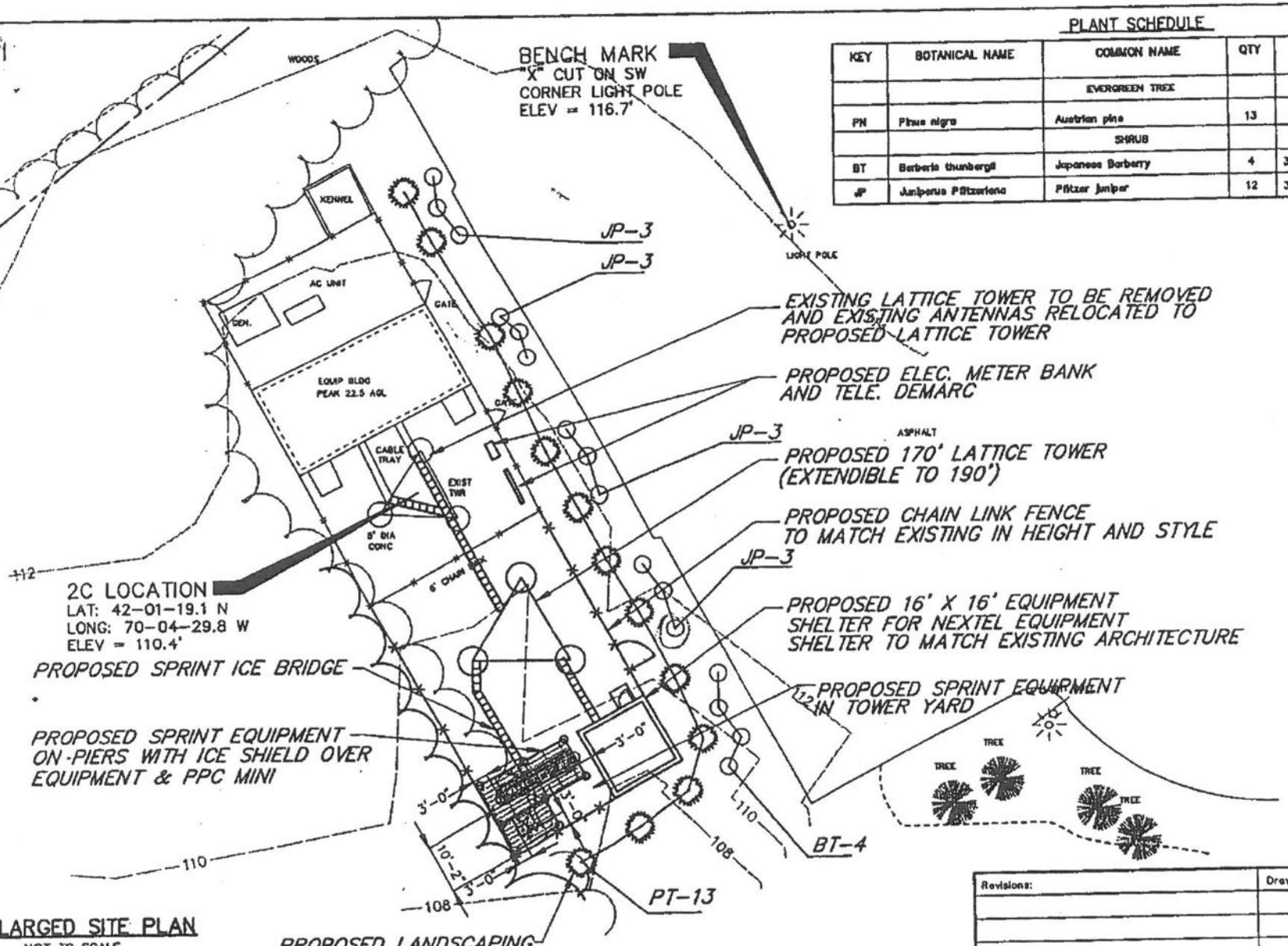
COMPREHENSIVE SITE PLAN

SCALE: N.T.S. DATE: 9/30/99

DRAWING NO.: A-1

SHEET 1 OF 3

Bk 14863 Pg200 #18097



ENLARGED SITE PLAN
NOT TO SCALE

PLANT SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	QTY	SIZE	COMMENTS
		EVERGREEN TREE			
PN	Pinus nigra	Austrian pine	13	6'-7' HT.	B&B
		SHRUB			
BT	Berberis thunbergii	Japanese Barberry	4	30"-36" HT.	B&B
JP	Juniperus Pfitzeriana	Pfitzer Juniper	12	30"-36" HT.	B&B

Revisions:	Drawn By:	App'd. By:	Date:

Owner Initials:
Date:
SSLP Initials:
Date:

Note: Owner and SSLP may, at SSLP's option, replace this Exhibit with an exhibit setting forth the legal description of the property on which the Site is located and/or an as-built drawing depicting the site.

Sprint Spectrum, LP
PCS INSTALLATION PROJECT

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P.O. BOX 626 413-748-0796
CHA Project No.: 7472-68

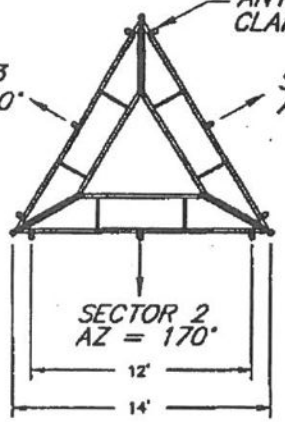
SITE #BS13XC597B3
TOWN OF TRURO
1000 RT. 6 EAST
TRURO, MA. 02666

ENLARGED SITE PLAN

SCALE: N.T.S. DATE: 9/30/99

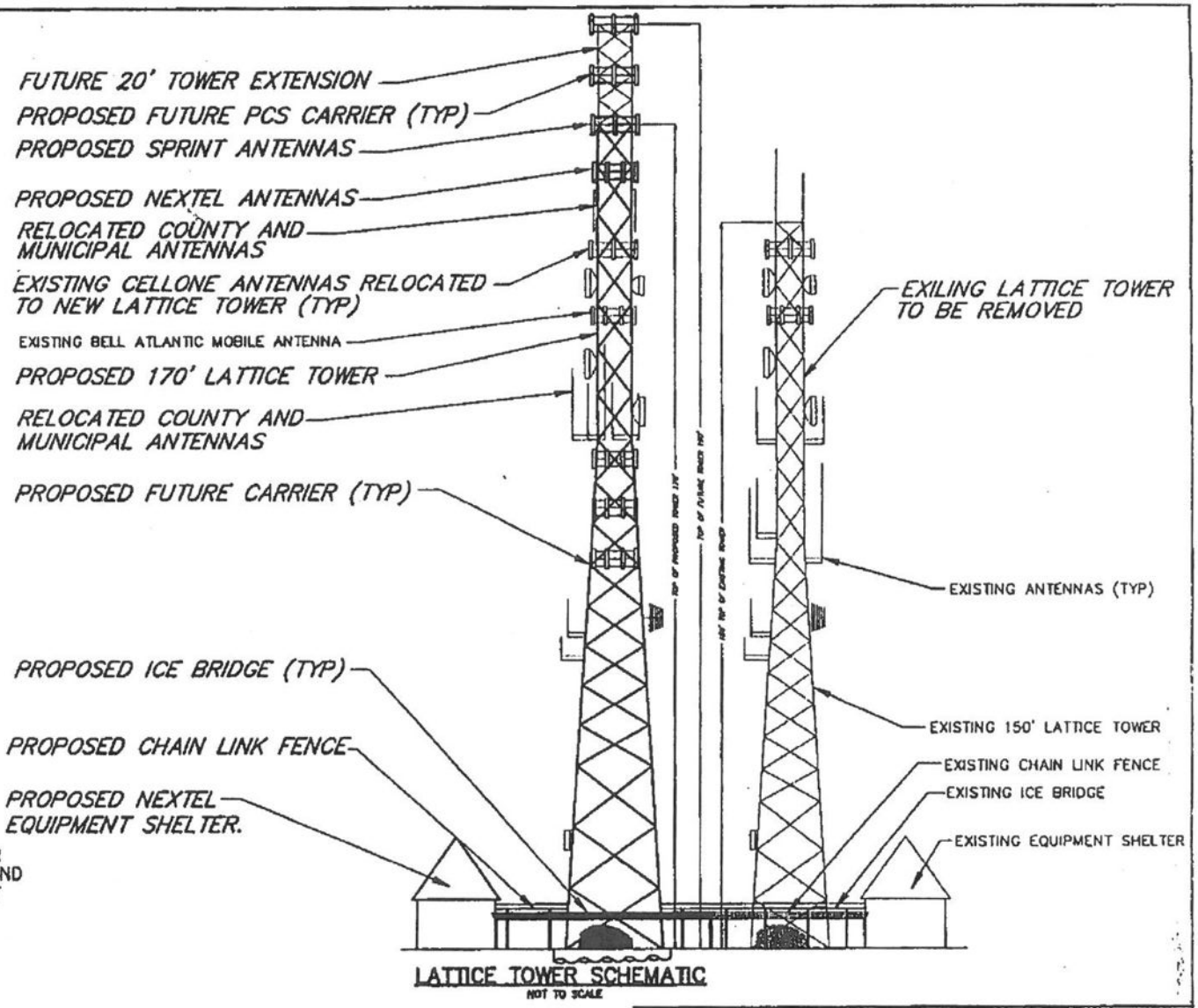
DRAWING NO.: A-2

SHEET 2 OF 3



A-A ANTENNA PLATFORM

NOT TO SCALE



LATTICE TOWER SCHEMATIC

NOT TO SCALE

NOTES:

1. SECTOR SIZE AND ALIGNMENT ARE SHOWN FOR REFERENCE PURPOSE ONLY. FINAL ANTENNA AND MOUNTING CONFIGURATION SUBJECT TO SPRINT SPECTRUM, L.P. ENGINEERING REQUIREMENTS.

Revisions:	Drawn By:	App'd. By:	Date:

Owner Initials:

Date:

SSLP Initials:

Date:

Note: Owner and SSLP may, at SSLP's option, replace this Exhibit with an exhibit setting forth the legal description of the property on which the Site is located and/or an as-built drawing depicting the site.

Sprint Spectrum, LP

PCS INSTALLATION PROJECT

CLOUGH, HARBOUR & ASSOCIATES LLP
ENGINEERS, SURVEYORS, PLANNERS & LANDSCAPE ARCHITECTS
171 PARK AVENUE - WEST SPRINGFIELD, MA - 01090
P.O. BOX 826 413-746-0796

CHA Project No.: 7472-68

SITE #BS13XC597B3
TOWN OF TRURO
1000 RT. 6 EAST
TRURO, MA. 02666

TOWER SCHEMATIC & ANTENNA LAYOUT

SCALE: N.T.S. DATE: 9/30/99

DRAWING NO.: A-3

SHEET 3 OF 3

Date: **September 30, 2015**

Brittany Richardson
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

JACOBS
Jacobs Engineering Group. Inc.
5449 Bells Ferry Road
Acworth, GA 30102
770-701-2500

Subject: **Structural Analysis Report**

Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	138549
	Carrier Site Name:	Truro, MA
Crown Castle Designation:	**Crown Castle BU Number:**	841273
	Crown Castle Site Name:	TRURO
	Crown Castle JDE Job Number:	348371
	Crown Castle Work Order Number:	1126240
	Crown Castle Application Number:	312788 Rev. 1
Engineering Firm Designation:	**Jacobs Engineering Group, Inc. Project Number:**	1126240
Site Data:	**344 ROUTE 6, NORTH TRURO, Barnstable County, MA**	
	Latitude *42° 1' 18"*, Longitude *-70° 4' 30"*	
	170 Foot - Self Support Tower	

Dear Brittany Richardson,

Jacobs Engineering Group, Inc. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 829625, in accordance with application 312788, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA-222-G standard and local code requirements based upon a wind speed of 120 mph 3-second gust, exposure category C.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *Jacobs Engineering Group, Inc.* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Di Wang, E.I.T.
Structural Engineer

Reviewed By:

COMMONWEALTH OF MASSACHUSETTS
WALTER M. PRATHER
STRUCTURAL
No. 50759
REGISTERED PROFESSIONAL ENGINEER

Walter M. Prather, P.E.
Vice President of Engineering

tnxTower Report - version 6.1.4.1

9/30/2015

TABLE OF CONTENTS

APPENDIX A

TNXTOWER OUTPUT

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						Top Girt (T1)	9.7	Pass
						Redund Horz 1 Bracing (T9)	34.5	Pass
						Redund Diag 1 Bracing (T9)	35.6	Pass
						Inner Bracing (T9)	0.8	Pass
						Bolt Checks	93.4	Pass
						Rating =	93.4	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	42.5	Pass
1	Base Foundation Structural	0	9.0	Pass
1	Base Foundation Soil Interaction	0	53.0	Pass

Structure Rating (max from all components) =	93.4%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the existing, reserved, and proposed loads. No modifications are required at this time.

1) INTRODUCTION

This tower is a 170 ft Self Support tower designed by Sabre Communications Corporation in June of 2000. The tower was originally designed for a wind speed of 150 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 120 mph with no ice, 40 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category C.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
130.0	130.0	3	commscope	LNX-6514DS-A1M w/ Mount Pipe	2	1-5/8	-
		3	commscope	HBXX-6516DS-A2M w/ Mount Pipe			
		3	commscope	SBNHH-1D65B w/ Mount Pipe			
		3	alcatel lucent	PCS B25 RRH4x30			
		3	alcatel lucent	RRH2X60-AWS			
		1	css	X7C-680-2 w/ Mount Pipe			
		2	rfs celwave	DB-B1-6C-12AB-0Z			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
170.0	174.0	1	decibel	DB806-XC	1	1/2	1
	170.0	1	tower mounts	Pipe Mount [PM 601-1]			
169.0	169.0	2	alcatel lucent	1900MHz RRH (65MHz)	2	1-1/4	1
		2	alcatel lucent	800 EXTERNAL NOTCH FILTER			
		2	alcatel lucent	800MHZ RRH			
		6	rfs celwave	ACU-A20-N			
		2	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		2	tower mounts	Sector Mount [SM 302-1]			
165.0	173.0	1	bext	TFC2K	1	7/8	1
	165.0	1	bext	TFC2K			
		1	tower mounts	Side Arm Mount [SO 305-1]			
151.0	151.0	4	powerwave technologies	P65.15.XL.0 w/ Mount Pipe	2	1-1/4	1

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		2	tower mounts	Sector Mount [SM 602-1]			
145.0	145.0	3	ericsson	RRUS 11	-	-	2
		3	ericsson	RRUS 11	12 2 1	1-5/8 5/8 3/8	1
		6	kathrein	782-10250			
		6	kathrein	800 10122 w/ Mount Pipe			
		12	kathrein	860 10025			
		3	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		6	powerwave technologies	LGP21401			
		1	raycap	DC6-48-60-18-8F			
		1	tower mounts	Sector Mount [SM 302-3]			
139.0	139.0	1	tower mounts	Pipe Mount [PM 602-1]	1	EW52	1
	138.0	1	andrew	PAR6-59A			
130.0	130.0	1	css	X7C-665-2 w/ Mount Pipe	-	-	3
		3	amphenol	BXA-171063-8BF-EDIN-4 w/ Mount Pipe			
		6	css	V7C-665-4 w/ Mount Pipe			
		2	css	X7C-665-2 w/ Mount Pipe	18	1-5/8	1
		1	tower mounts	Sector Mount [SM 302-3]			
104.0	117.0	1	rfs celwave	PD220-5	8 10	3/8 7/8	1
	116.0	1	telewave	ANT150F6			
	114.0	1	sinclair	SRL-210C-4			
	113.0	1	decibel	DB540K-F			
	112.0	2	rfs celwave	AO8610-5T0			
	107.0	1	kathrein	K751221			
	106.0	2	commscope	VHLPX4-11W-6WH			
		1	rfs celwave	10191			
		1	telewave	ANT150F2			
	104.0	1	tower mounts	Sabre 30' Specialty Platform			
96.0	97.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	5	1-1/4	2
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			
	96.0	1	tower mounts	Sector Mount [SM 406-3]	6	7/8	1
87.0	87.0	1	scala	PR-950	1	1/2	1
		1	tower mounts	Side Arm Mount [SO 201-1]			
71.0	73.0	1	pctel	GPS-TMG-HR-26N	1	1/2	1
	71.0	1	tower mounts	Side Arm Mount [SO 601-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment

3) Equipment To Be Removed; Not considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
187.5	187.5	12	DAPA	48000 antennas w/ mounts	12	1-5/8
177.5	177.5	12	DAPA	48000 antennas w/ mounts	12	1-5/8
167.5	167.5	12	DAPA	48000 antennas w/ mounts	12	1-5/8
157.5	157.5	12	DAPA	48000 antennas w/ mounts	12	1-5/8
148	148	2	--	10' Whips w/ mounts	2	1-5/8
144	144	12	DAPA	48000 antennas w/ mounts	12	1-5/8
137	137	1	--	6' Dish w/ radome	1	1-5/8
136	136	1	--	4' H.P. Dish	1	1-5/8
130	130	12	DAPA	48000 antennas w/ mounts	12	1-5/8
120	120	1	--	6' Whip w/ mount	1	1-5/8
110	110	6	--	18' Whips w/ mount	6	1-5/8
105	105	1	--	18' Whip w/ mount	2	1-5/8
		1	--	15' Whip w/ mount		
100	100	12	DAPA	48000 antennas w/ mounts	12	1-5/8
90	90	12	DAPA	48000 antennas w/ mounts	12	1-5/8
80	80	12	DAPA	48000 antennas w/ mounts	12	1-5/8
68	68	1	--	Yagi antenna	1	1-5/8
20	20	4	--	8'x1' Panels w/ mounts	4	1-5/8

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	CHA, LLP	5156276	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Sabre	4468581	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Sabre	4287353	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Sabre	5156323	CCISITES

3.1) Analysis Method

tnxTower (version 6.1.4.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

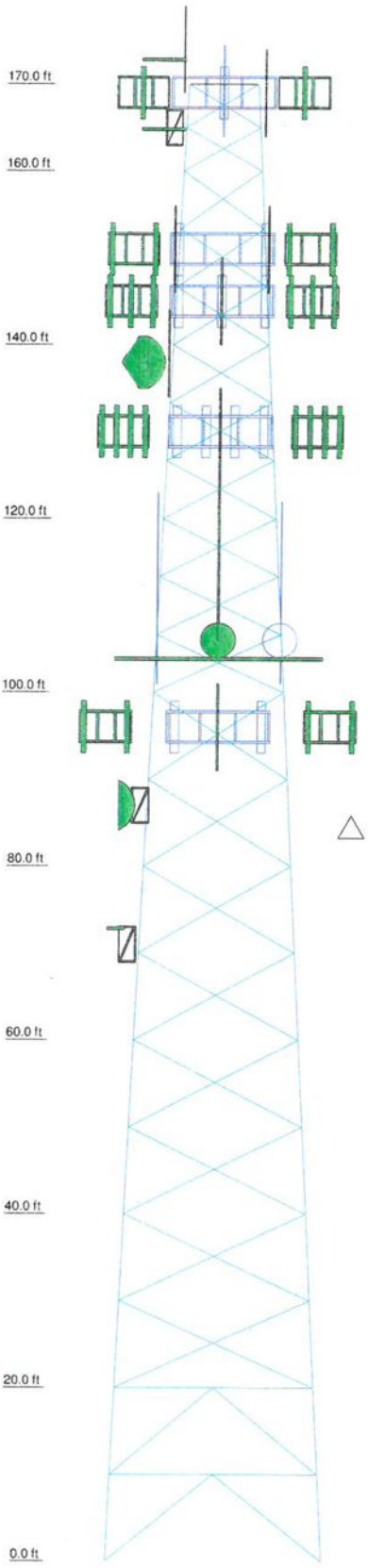
This analysis may be affected if any assumptions are not valid or have been made in error. Jacobs Engineering Group, Inc. should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	170 - 160	Leg	Sabre 3.5" x 0.216"	3	-13.548	82.510	16.4	Pass
T2	160 - 140	Leg	Sabre 4.5" x 0.438"	20	-56.481	200.839	28.1	Pass
T3	140 - 120	Leg	Sabre 6.625" x 0.432"	41	-120.282	343.100	35.1	Pass
T4	120 - 100	Leg	Sabre 8.625" x 0.5"	62	-193.719	542.674	35.7	Pass
T5	100 - 80	Leg	Sabre 10.750" x 0.500"	83	-269.505	668.659	40.3	Pass
T6	80 - 60	Leg	Sabre 12.75" x 0.5"	98	-353.734	818.560	43.2	Pass
T7	60 - 40	Leg	Sabre 16" x 0.5"	113	-438.214	1057.800	41.4	Pass
T8	40 - 20	Leg	Sabre 18" x 0.5"	128	-522.161	1203.360	43.4 47.0 (b)	Pass
T9	20 - 0	Leg	Sabre 18" x 0.5"	143	-581.474	1228.500	47.3	Pass
T1	170 - 160	Diagonal	L2x2x3/8	11	-9.579	13.615	70.4	Pass
T2	160 - 140	Diagonal	L3x3x3/8	23	-12.919	29.991	43.1 66.7 (b)	Pass
T3	140 - 120	Diagonal	L3 1/2x3 1/2x3/8	44	-16.663	37.666	44.2 80.1 (b)	Pass
T4	120 - 100	Diagonal	L3 1/2x3 1/2x1/2	64	-18.242	40.351	45.2 66.7 (b)	Pass
T5	100 - 80	Diagonal	L5x5x1/2	85	-24.134	77.136	31.3 91.8 (b)	Pass
T6	80 - 60	Diagonal	L5x5x5/8	100	-25.856	85.758	30.1 78.8 (b)	Pass
T7	60 - 40	Diagonal	L5x5x5/8	115	-27.570	76.053	36.3 86.5 (b)	Pass
T8	40 - 20	Diagonal	L5x5x5/8	131	-29.917	65.724	45.5 93.4 (b)	Pass
T9	20 - 0	Diagonal	L5x5x5/8	149	-38.988	92.237	42.3 50.1 (b)	Pass
T9	20 - 0	Horizontal	2L3 1/2x3 1/2x1/4x3/8	145	-28.849	50.971	56.6	Pass
T1	170 - 160	Top Girt	L2 1/2x2 1/2x3/16	6	-0.609	6.303	9.7	Pass
T9	20 - 0	Redund Horz 1 Bracing	L3x3x5/16	150	-10.093	29.278	34.5	Pass
T9	20 - 0	Redund Diag 1 Bracing	L3x3x1/4	155	-6.410	18.026	35.6	Pass
T9	20 - 0	Inner Bracing	L3x3x3/16	166	-0.036	4.218	0.8	Pass
							Summary	
						Leg (T9)	47.3	Pass
						Diagonal (T8)	93.4	Pass
						Horizontal (T9)	56.6	Pass

Section	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	Sabre 18" x 0.5"		Sabre 16" x 0.5"	Sabre 12.75" x 0.5"	Sabre 10.750" x 0.500"	Sabre 8.625" x 0.5"	Sabre 6.625" x 0.432"	Sabre 4.5" x 0.438"	A
Leg Grade	A572-50								
Diagonals	L5x5x5/8				L5x5x1/2	L3 1/2x3 1/2x1/2	L3 1/2x3 1/2x3/8	L3x3x3/8	L2x2x3/8
Diagonal Grade	A36								
Top Girts	N.A.								B
Horizontals	2L3 1/2x3 1/2x1/4x3/8				N.A.				
Red. Horizontals	L3x3x5/16				N.A.				
Red. Diagonals	L3x3x1/4				N.A.				
Inner Bracing	L3x3x3/16				N.A.				
Face Width (ft)	23		21	19	17	15	13	11	9
# Panels @ (ft)	2 @ 5		10 @ 10		9 @ 6.66667				8
Weight (K)	65.9	12.8	12.0	10.8	9.3	7.3	6.0	4.0	2.8	0.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 5/8" x 5' (E)	170	HBXX-6516DS-A2M w/ Mount Pipe (Proposed)	130
DB806-XC (E)	170	HBXX-6516DS-A2M w/ Mount Pipe (Proposed)	130
Pipe Mount [PM 601-1]	170	HBXX-6516DS-A2M w/ Mount Pipe (Proposed)	130
APXVSPP18-C-A20 w/ Mount Pipe (E)	169	SBNHH-1D65B w/ Mount Pipe (Proposed)	130
APXVSPP18-C-A20 w/ Mount Pipe (E)	169	SBNHH-1D65B w/ Mount Pipe (Proposed)	130
1900MHz RRH (65MHz) (E)	169	SBNHH-1D65B w/ Mount Pipe (Proposed)	130
1900MHz RRH (65MHz) (E)	169	X7C-665-2 w/ Mount Pipe (Installed)	130
800 EXTERNAL NOTCH FILTER (E)	169	X7C-665-2 w/ Mount Pipe (Installed)	130
800 EXTERNAL NOTCH FILTER (E)	169	X7C-680-2 w/ Mount Pipe (Proposed)	130
800MHZ RRH (E)	169	PCS B25 RRH4x30 (Proposed)	130
800MHZ RRH (E)	169	PCS B25 RRH4x30 (Proposed)	130
(3) ACU-A20-N (E)	169	PCS B25 RRH4x30 (Proposed)	130
(3) ACU-A20-N (E)	169	DB-B1-6C-12AB-0Z (Proposed)	130
(2) 5' x 2" Pipe Mount (E)	169	DB-B1-6C-12AB-0Z (Proposed)	130
(2) 5' x 2" Pipe Mount (E)	169	RRH2X60-AWS (Proposed)	130
(3) 7'x2" Antenna Mount Pipe (E-Per Photo)	169	RRH2X60-AWS (Proposed)	130
(3) 7'x2" Antenna Mount Pipe (E-Per Photo)	169	RRH2X60-AWS (Proposed)	130
Pipe Mount [PM 602-1] (E-Per Photo)	169	Pipe Mount [PM 602-3] (E)	130
Pipe Mount [PM 602-1] (E-Per Photo)	169	Sector Mount [SM 302-3] (E)	130
Sector Mount [SM 302-1] (E)	169	LNX-6514DS-A1M w/ Mount Pipe (Proposed)	130
Sector Mount [SM 302-1] (E)	169	AO8610-5T0 (E)	104
TFC2K (E)	165	K751221 (E)	104
TFC2K (E)	165	SRL-210C-4 (E)	104
15' x 2" Pipe Mount (E-Per Photo)	165	ANT150F6 (E)	104
Side Arm Mount [SO 305-1] (E)	165	PD220-5 (E)	104
(2) P65.15.XL.0 w/ Mount Pipe (E)	151	AO8610-5T0 (E)	104
(2) P65.15.XL.0 w/ Mount Pipe (E)	151	10191 (E)	104
Pipe Mount [PM 602-1] (E-Per Photo)	151	DB540K-F (E)	104
Pipe Mount [PM 602-1] (E-Per Photo)	151	(4) 6' x 2" Mount Pipe (E-Per Photo)	104
Sector Mount [SM 602-1] (E)	151	(4) 6' x 2" Mount Pipe (E-Per Photo)	104
Sector Mount [SM 602-1] (E)	151	(4) 6' x 2" Mount Pipe (E-Per Photo)	104
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	145	Pipe Mount [PM 601-1] (E-For Dish)	104
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	145	Pipe Mount [PM 601-1] (E-For Dish)	104
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	145	Sabre 30' Specialty Platform (E)	104
(2) 800 10122 w/ Mount Pipe (E)	145	ANT150F2 (E)	104
(2) 800 10122 w/ Mount Pipe (E)	145	VHLPX4-11W-6WH (E)	104
(2) 800 10122 w/ Mount Pipe (E)	145	VHLPX4-11W-6WH (E)	104
RRUS 11 (E)	145	ERICSSON AIR 21 B4A B2P w/ Mount Pipe (P)	96
RRUS 11 (E)	145	ERICSSON AIR 21 B4A B2P w/ Mount Pipe (P)	96
RRUS 11 (E)	145	ERICSSON AIR 21 B4A B2P w/ Mount Pipe (P)	96
(2) 782-10250 (E)	145	KRY 112 144/1 (P)	96
(2) 782-10250 (E)	145	KRY 112 144/1 (P)	96
(2) 782-10250 (E)	145	KRY 112 144/1 (P)	96
(4) 860 10025 (E)	145	Pipe Mount [PM 602-3] (E)	96
(4) 860 10025 (E)	145	Sector Mount [SM 406-3] (E)	96
(4) 860 10025 (E)	145	ERICSSON AIR 21 B2A B4P w/ Mount Pipe (P)	96
(2) LGP21401 (E)	145	ERICSSON AIR 21 B2A B4P w/ Mount Pipe (P)	96
(2) LGP21401 (E)	145	ERICSSON AIR 21 B2A B4P w/ Mount Pipe (P)	96
(2) LGP21401 (E)	145	Side Arm Mount [SO 201-1] (E)	87
DC6-48-60-18-8F (E-Per Photo)	145	PR-950 (E)	87
RRUS 11 (R)	145	GPS-TMG-HR-26N (E)	71
RRUS 11 (R)	145	6' x 2" Mount Pipe (E-Per Photo)	71
RRUS 11 (R)	145	Side Arm Mount [SO 601-1] (E)	71
6' x 2" Mount Pipe (E)	145		
6' x 2" Mount Pipe (E)	145		
6' x 2" Mount Pipe (E)	145		
Pipe Mount [PM 602-3] (E)	145		
Sector Mount [SM 302-3] (E)	145		
Pipe Mount [PM 602-1] (E)	139		
PAR6-59A (E)	139		
LNX-6514DS-A1M w/ Mount Pipe (Proposed)	130		
LNX-6514DS-A1M w/ Mount Pipe (Proposed)	130		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Sabre 3.5" x 0.216"	B	L2 1/2x2 1/2x3/16

MATERIAL STRENGTH

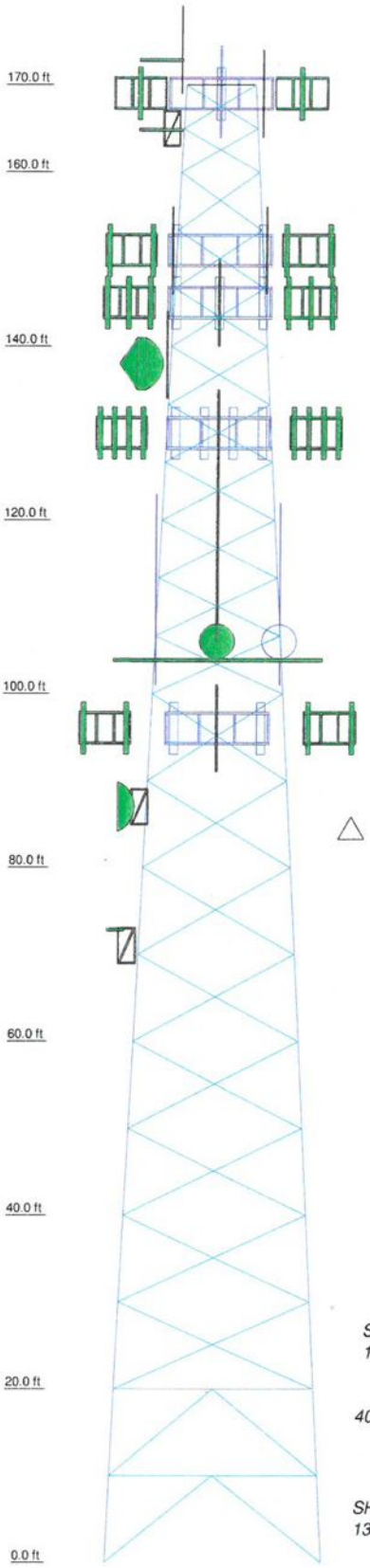
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

Jacobs Engineering Group, Inc.
5449 Bells Ferry Road
Acworth, GA 30102
Phone: 770-701-2500
FAX: 770-701-2501

Job: *TRURO*			
Project: *BU#841273 WO#1126240*			
Client: Crown Castle	Drawn by: Di Wang		App'd:
Code: TIA-222-G	Date: 09/30/15		Scale: NTS
Path:			Dwg No. E-1

Section	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	Sabre 18" x 0.5"		Sabre 16" x 0.5"	Sabre 12.75" x 0.5"	Sabre 10.750" x 0.500"	Sabre 8.625" x 0.5"	Sabre 6.625" x 0.432"	Sabre 4.5" x 0.438"	A
Leg Grade	A572-50								
Diagonals	L5x5x5/8				L5x5x1/2	L3 1/2x3 1/2x1/2	L3 1/2x3 1/2x3/8	L3x3x3/8	L2x2x3/8
Diagonal Grade	A36								
Top Girts	N.A.								B
Horizontals	2L3 1/2x3 1/2x1/4x3/8				N.A.				
Red. Horizontals	L3x3x5/16				N.A.				
Red. Diagonals	L3x3x1/4				N.A.				
Inner Bracing	L3x3x3/16				N.A.				
Face Width (ft)	25	23	21	19	17	15	13	11	9	8
# Panels @ (ft)	2 @ 5	10 @ 10					9 @ 6.66667			2 @ 5
Weight (K)	65.9	12.8	12.6	10.8	9.3	7.3	6.0	4.0	2.8	0.9



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Sabre 3.5" x 0.216"	B	L2 1/2x2 1/2x3/16

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

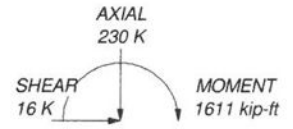
TOWER DESIGN NOTES

1. Tower is located in Barnstable County, Massachusetts.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 40 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 93.4%

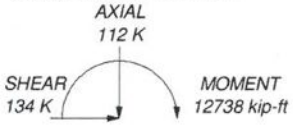
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 626 K
SHEAR: 79 K

UPLIFT: -535 K
SHEAR: 70 K



TORQUE 12 kip-ft
40 mph WIND - 0.750 in ICE



TORQUE 128 kip-ft
REACTIONS - 120 mph WIND

Jacobs Engineering Group, Inc.
5449 Bells Ferry Road
Acworth, GA 30102
Phone: 770-701-2500
FAX: 770-701-2501

Job: **TRURO**			
Project: ***BU#841273 WO#1126240***			
Client: Crown Castle	Drawn by: Di Wang	App'd:	
Code: TIA-222-G	Date: 09/30/15	Scale: NTS	
Path:		Dwg No. E-1	

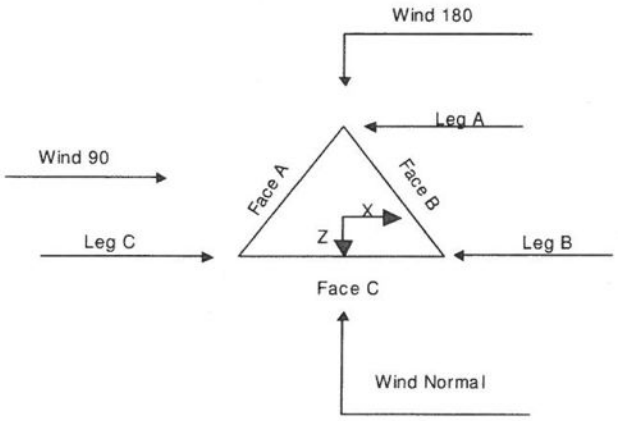
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 170.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 8.000 ft at the top and 25.000 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

4) Tower is located in Barnstable County, Massachusetts.
5) Basic wind speed of 120 mph.
6) Structure Class II.
7) Exposure Category C.
8) Topographic Category 1.
9) Crest Height 0.000 ft.
10) Nominal ice thickness of 0.750 in.
11) Ice thickness is considered to increase with height.
12) Ice density of 56.000 pcf.
13) A wind speed of 40 mph is used in combination with ice.
14) Temperature drop of 50.000 °F.
15) Deflections calculated using a wind speed of 60 mph.
16) Pressures are calculated at each section.
17) Stress ratio used in tower member design is 1.
18) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	√ Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	√ SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	All Leg Panels Have Same Allowable
Escalate Ice	√ Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	√ Include Angle Block Shear Check
√ Include Bolts In Member Capacity	Autocalc Torque Arm Areas	**Poles**
Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	Include Shear-Torsion Interaction
√ Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination	Use TIA-222-G Tension Splice	
	Capacity Exemption	



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	170.000-160.000			8.000	1	10.000
T2	160.000-140.000			9.000	1	20.000
T3	140.000-120.000			11.000	1	20.000
T4	120.000-100.000			13.000	1	20.000
T5	100.000-80.000			15.000	1	20.000
T6	80.000-60.000			17.000	1	20.000
T7	60.000-40.000			19.000	1	20.000
T8	40.000-20.000			21.000	1	20.000
T9	20.000-0.000			23.000	1	20.000

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	170.000-160.000	5.000	X Brace	No	No	0.000	0.000
T2	160.000-140.000	6.667	X Brace	No	No	0.000	0.000
T3	140.000-120.000	6.667	X Brace	No	No	0.000	0.000
T4	120.000-100.000	6.667	X Brace	No	No	0.000	0.000
T5	100.000-80.000	10.000	X Brace	No	No	0.000	0.000
T6	80.000-60.000	10.000	X Brace	No	No	0.000	0.000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T7	60.000-40.000	10.000	X Brace	No	No	0.000	0.000
T8	40.000-20.000	10.000	X Brace	No	No	0.000	0.000
T9	20.000-0.000	10.000	K1 Down	No	Yes	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 170.000-160.000	Pipe	Sabre 3.5" x 0.216"	A572-50 (50 ksi)	Equal Angle	L2x2x3/8	A36 (36 ksi)
T2 160.000-140.000	Pipe	Sabre 4.5" x 0.438"	A572-50 (50 ksi)	Equal Angle	L3x3x3/8	A36 (36 ksi)
T3 140.000-120.000	Pipe	Sabre 6.625" x 0.432"	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x3/8	A36 (36 ksi)
T4 120.000-100.000	Pipe	Sabre 8.625" x 0.5"	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/2	A36 (36 ksi)
T5 100.000-80.000	Pipe	Sabre 10.750" x 0.500"	A572-50 (50 ksi)	Equal Angle	L5x5x1/2	A36 (36 ksi)
T6 80.000-60.000	Pipe	Sabre 12.75" x 0.5"	A572-50 (50 ksi)	Equal Angle	L5x5x5/8	A36 (36 ksi)
T7 60.000-40.000	Pipe	Sabre 16" x 0.5"	A572-50 (50 ksi)	Equal Angle	L5x5x5/8	A36 (36 ksi)
T8 40.000-20.000	Pipe	Sabre 18" x 0.5"	A572-50 (50 ksi)	Equal Angle	L5x5x5/8	A36 (36 ksi)
T9 20.000-0.000	Pipe	Sabre 18" x 0.5"	A572-50 (50 ksi)	Equal Angle	L5x5x5/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 170.000-160.000	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Flat Bar		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T9 20.000-0.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3 1/2x3 1/2x1/4x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T9 20.000-0.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T9 20.000-0.000	A36 (36 ksi)	Horizontal (1)	Equal Angle	L3x3x5/16	1
		Diagonal (1)	Equal Angle	L3x3x1/4	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 170.000-160.000	0.000	0.375	A36 (36 ksi)	1.03	1	1.05	0.000	0.000
T2 160.000-140.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T3 140.000-120.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T4 120.000-100.000	0.000	0.625	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T5 100.000-80.000	0.000	0.625	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T6 80.000-60.000	0.000	0.625	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T7 60.000-40.000	0.000	0.625	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T8 40.000-20.000	0.000	0.625	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T9 20.000-0.000	0.000	0.625	A36 (36 ksi)	1.05	1	1.05	0.000	43.832

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Brace Diags X	K Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T1 170.000-160.000	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T2 160.000-140.000	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T3 140.000-120.000	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T4 120.000-100.000	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T5 100.000-80.000	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T6 80.000-	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors[1] X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
60.000				1	1	1	1	1	1	1
T7 60.000-40.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T8 40.000-20.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T9 20.000-0.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 170.000-160.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 160.000-140.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 140.000-120.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 120.000-100.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 100.000-80.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 80.000-60.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 60.000-40.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 40.000-20.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 20.000-0.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 170.000-160.000	Flange	1.000 A325N	4	0.625 A325X	1	0.625 A325X	1	0.625 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T2 160.000-140.000	Flange	1.250 A325N	4	0.750 A325X	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T3 140.000-120.000	Flange	1.250 A325N	6	1.000 A325X	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T4 120.000-100.000	Flange	1.375 A325N	6	1.000 A325X	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T5 100.000-80.000	Flange	1.375 A325N	6	1.125 A325X	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T6 80.000-60.000	Flange	1.500 A325N	6	1.125 A325X	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T7 60.000-40.000	Flange	1.500 A325N	8	1.250 A325X	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T8 40.000-20.000	Flange	1.500 A325N	8	1.250 A325X	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T9 20.000-0.000	Flange	2.000 A36M-50	0	1.000 A325X	2	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	1.000 A325X	2	0.625 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
FSJ4-50B(1/2") (E)	A	No	Ar (CaAa)	170.000 - 0.000	-5.000	0.4	1	1	0.850 0.750	0.520		0.000
AL5-50(7/8) (E)	A	No	Ar (CaAa)	165.000 - 104.000	-7.000	0.44	1	1	0.850 0.750	1.100		0.000
AL5-50(7/8) (E)	A	No	Ar (CaAa)	104.000 - 0.000	-7.000	0.44	11	9	0.850 0.750	1.100		0.000
LDF6-50A(1-1/4") (E)	A	No	Ar (CaAa)	151.000 - 0.000	-6.000	0.4	2	1	0.850 0.750	1.550		0.001
EW52(ELLIPTICAL) (E)	A	No	Ar (CaAa)	139.000 - 0.000	-8.000	0.4	1	1	0.850 0.750	2.250		0.001
LDF2-50(3/8") (E)	A	No	Ar (CaAa)	104.000 - 0.000	-5.500	0.43	8	8	0.850 0.750	0.440		0.000
T-Bracket (E) *##*	A	No	Af (CaAa)	150.000 - 0.000	-6.000	0.45	1	1	3.000	1.500		0.010
LDF2-50(3/8") (E)	C	No	Ar (CaAa)	145.000 - 0.000	-12.000	-0.39	1	1	0.850 0.750	0.440		0.000
LDF7-50A(1-5/8") (E)	C	No	Ar (CaAa)	145.000 - 0.000	-10.000	-0.4	12	6	0.850 0.750	1.980		0.001
WR-VG82ST-BRDA(5/8") (E)	C	No	Ar (CaAa)	145.000 - 0.000	-12.000	-0.42	2	2	0.850 0.750	0.645		0.000
T-Brackets (Af) (E)	C	No	Af (CaAa)	155.000 - 0.000	-7.000	-0.4	1	1	1.000	1.000		0.008
Feedline Ladder (Af) (E) *##*	C	No	Af (CaAa)	94.000 - 0.000	0.000	0	1	1	3.000	3.000		0.008
LDF7-50A(1-5/8") (E)	C	No	Ar (CaAa)	130.000 - 0.000	-13.000	0.42	14	8	0.850 0.750	1.980		0.001
LDF4-50A(1/2") (E)	C	No	Ar (CaAa)	87.000 - 71.000	-2.000	0.41	1	1	0.630	0.630		0.000
LDF4-50A(1/2") (E)	C	No	Ar (CaAa)	71.000 - 0.000	-2.000	0.41	2	1	0.630	0.630		0.000
LDF7-50A(1-5/8") (4E+2P)	C	No	Ar (CaAa)	130.000 - 0.000	-7.000	0.42	6	2	0.850 0.750	1.980		0.001
LDF7-50A(1-5/8")	C	No	Ar (CaAa)	169.000 - 130.000	-7.000	0.42	2	2	0.850 0.750	1.980		0.001

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
(E) T-Brackets (Af) (E) *##*	C	No	Af (CaAa)	169.000 - 0.000	-5.000	0.41	1	1	1.000	1.000		0.008
Thin Flat Bar Climbing Ladder (E)	B	No	Af (CaAa)	170.000 - 0.000	0.000	0	1	1	2.000	2.000		0.004
Safety Line 3/8 (E) *##*	B	No	Ar (CaAa)	170.000 - 0.000	0.000	0	1	1	0.375	0.375		0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight klf
##										
RFF-24SM-1206-618-APE(1-1/4") (E) *##*	C	No	CaAa (Out Of Face)	96.000 - 0.000	0.000	0.03	11	No Ice 1/2" Ice 1" Ice	0.131 0.231 0.331	0.001 0.003 0.004

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	170.000-160.000	A	0.000	0.000	1.070	0.000	0.003
		B	0.000	0.000	3.708	0.000	0.042
		C	0.000	0.000	5.064	0.000	0.090
T2	160.000-140.000	A	0.000	0.000	9.150	0.000	0.123
		B	0.000	0.000	7.417	0.000	0.084
		C	0.000	0.000	26.498	0.000	0.379
T3	140.000-120.000	A	0.000	0.000	18.715	0.000	0.246
		B	0.000	0.000	7.417	0.000	0.084
		C	0.000	0.000	101.207	0.000	0.727
T4	120.000-100.000	A	0.000	0.000	24.748	0.000	0.259
		B	0.000	0.000	7.417	0.000	0.084
		C	0.000	0.000	136.847	0.000	0.875
T5	100.000-80.000	A	0.000	0.000	47.980	0.000	0.311
		B	0.000	0.000	7.417	0.000	0.084
		C	0.000	0.000	144.288	23.057	1.253
T6	80.000-60.000	A	0.000	0.000	47.980	0.000	0.311
		B	0.000	0.000	7.417	0.000	0.084
		C	0.000	0.000	148.800	28.821	1.372
T7	60.000-40.000	A	0.000	0.000	47.980	0.000	0.311
		B	0.000	0.000	7.417	0.000	0.084
		C	0.000	0.000	149.367	28.821	1.374
T8	40.000-20.000	A	0.000	0.000	47.980	0.000	0.311
		B	0.000	0.000	7.417	0.000	0.084
		C	0.000	0.000	149.367	28.821	1.374
T9	20.000-0.000	A	0.000	0.000	47.980	0.000	0.311
		B	0.000	0.000	7.417	0.000	0.084
		C	0.000	0.000	149.367	28.821	1.374

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	170.000-160.000	A	1.762	0.000	0.000	6.356	0.000	0.083
		B		0.000	0.000	10.756	0.000	0.189
		C		0.000	0.000	15.907	0.000	0.272
T2	160.000-140.000	A	1.745	0.000	0.000	35.436	0.000	0.564
		B		0.000	0.000	21.378	0.000	0.373
		C		0.000	0.000	62.524	0.000	1.175
T3	140.000-120.000	A	1.720	0.000	0.000	61.786	0.000	1.026
		B		0.000	0.000	21.180	0.000	0.367
		C		0.000	0.000	161.037	0.000	3.062
T4	120.000-100.000	A	1.692	0.000	0.000	77.142	0.000	1.208
		B		0.000	0.000	20.952	0.000	0.359
		C		0.000	0.000	197.803	0.000	3.827
T5	100.000-80.000	A	1.658	0.000	0.000	137.851	0.000	1.940
		B		0.000	0.000	20.683	0.000	0.351
		C		0.000	0.000	210.904	81.428	5.457
T6	80.000-60.000	A	1.617	0.000	0.000	136.558	0.000	1.891
		B		0.000	0.000	20.354	0.000	0.341
		C		0.000	0.000	223.673	99.974	5.907
T7	60.000-40.000	A	1.564	0.000	0.000	134.880	0.000	1.828
		B		0.000	0.000	19.926	0.000	0.328
		C		0.000	0.000	224.752	97.620	5.783
T8	40.000-20.000	A	1.486	0.000	0.000	132.440	0.000	1.739
		B		0.000	0.000	19.303	0.000	0.309
		C		0.000	0.000	220.879	94.193	5.544
T9	20.000-0.000	A	1.331	0.000	0.000	127.610	0.000	1.567
		B		0.000	0.000	18.066	0.000	0.275
		C		0.000	0.000	213.199	87.392	5.080

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	170.000-160.000	-1.073	0.037	-0.198	-0.980
T2	160.000-140.000	1.109	0.003	1.302	-1.812
T3	140.000-120.000	0.329	2.178	1.186	-1.064
T4	120.000-100.000	-2.217	2.842	-0.158	-0.891
T5	100.000-80.000	-5.064	2.897	-5.985	1.591
T6	80.000-60.000	-6.153	3.760	-7.747	2.805
T7	60.000-40.000	-6.560	4.086	-8.388	3.070
T8	40.000-20.000	-7.001	4.425	-8.967	3.270
T9	20.000-0.000	-7.349	4.701	-9.131	3.266

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	FSJ4-50B(1/2")	160.00 - 170.00	0.6000	0.6000
T1	2	AL5-50(7/8)	160.00 - 165.00	0.6000	0.6000
T1	23	LDF7-50A(1-5/8")	160.00 - 169.00	0.6000	0.6000
T1	25	T-Brackets (Af)	160.00 - 169.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	27	Thin Flat Bar Climbing Ladder	160.00 - 170.00	0.6000	0.6000
T1	28	Safety Line 3/8	160.00 - 170.00	0.6000	0.6000
T2	1	FSJ4-50B(1/2")	140.00 - 160.00	0.6000	0.6000
T2	2	AL5-50(7/8)	140.00 - 160.00	0.6000	0.6000
T2	4	LDF6-50A(1-1/4")	140.00 - 151.00	0.6000	0.6000
T2	7	T-Bracket	140.00 - 150.00	0.6000	0.6000
T2	9	LDF2-50(3/8")	140.00 - 145.00	0.6000	0.6000
T2	10	LDF7-50A(1-5/8")	140.00 - 145.00	0.6000	0.6000
T2	11	WR-VG82ST-BRDA(5/8")	140.00 - 145.00	0.6000	0.6000
T2	12	T-Brackets (Af)	140.00 - 155.00	0.6000	0.6000
T2	23	LDF7-50A(1-5/8")	140.00 - 160.00	0.6000	0.6000
T2	25	T-Brackets (Af)	140.00 - 160.00	0.6000	0.6000
T2	27	Thin Flat Bar Climbing Ladder	140.00 - 160.00	0.6000	0.6000
T2	28	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T3	1	FSJ4-50B(1/2")	120.00 - 140.00	0.6000	0.6000
T3	2	AL5-50(7/8)	120.00 - 140.00	0.6000	0.6000
T3	4	LDF6-50A(1-1/4")	120.00 - 140.00	0.6000	0.6000
T3	5	EW52(ELLIPTICAL)	120.00 - 139.00	0.6000	0.6000
T3	7	T-Bracket	120.00 - 140.00	0.6000	0.6000
T3	9	LDF2-50(3/8")	120.00 - 140.00	0.6000	0.6000
T3	10	LDF7-50A(1-5/8")	120.00 - 140.00	0.6000	0.6000
T3	11	WR-VG82ST-BRDA(5/8")	120.00 - 140.00	0.6000	0.6000
T3	12	T-Brackets (Af)	120.00 - 140.00	0.6000	0.6000
T3	19	LDF7-50A(1-5/8")	120.00 - 130.00	0.6000	0.6000
T3	22	LDF7-50A(1-5/8")	120.00 - 130.00	0.6000	0.6000
T3	23	LDF7-50A(1-5/8")	130.00 - 140.00	0.6000	0.6000
T3	25	T-Brackets (Af)	120.00 - 140.00	0.6000	0.6000
T3	27	Thin Flat Bar Climbing Ladder	120.00 - 140.00	0.6000	0.6000
T3	28	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T4	1	FSJ4-50B(1/2")	100.00 - 120.00	0.6000	0.6000
T4	2	AL5-50(7/8)	104.00 - 120.00	0.6000	0.6000
T4	3	AL5-50(7/8)	100.00 - 104.00	0.6000	0.6000
T4	4	LDF6-50A(1-1/4")	100.00 - 120.00	0.6000	0.6000
T4	5	EW52(ELLIPTICAL)	100.00 - 120.00	0.6000	0.6000
T4	6	LDF2-50(3/8")	100.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	7	T-Bracket	104.00 - 120.00	0.6000	0.6000
T4	9	LDF2-50(3/8")	100.00 - 120.00	0.6000	0.6000
T4	10	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.6000
T4	11	WR-VG82ST-BRDA(5/8")	100.00 - 120.00	0.6000	0.6000
T4	12	T-Brackets (Af)	100.00 - 120.00	0.6000	0.6000
T4	19	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.6000
T4	22	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.6000
T4	25	T-Brackets (Af)	100.00 - 120.00	0.6000	0.6000
T4	27	Thin Flat Bar Climbing Ladder	100.00 - 120.00	0.6000	0.6000
T4	28	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T5	1	FSJ4-50B(1/2")	80.00 - 100.00	0.6000	0.6000
T5	3	AL5-50(7/8)	80.00 - 100.00	0.6000	0.6000
T5	4	LDF6-50A(1-1/4")	80.00 - 100.00	0.6000	0.6000
T5	5	EW52(ELLIPTICAL)	80.00 - 100.00	0.6000	0.6000
T5	6	LDF2-50(3/8")	80.00 - 100.00	0.6000	0.6000
T5	7	T-Bracket	80.00 - 100.00	0.6000	0.6000
T5	9	LDF2-50(3/8")	80.00 - 100.00	0.6000	0.6000
T5	10	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T5	11	WR-VG82ST-BRDA(5/8")	80.00 - 100.00	0.6000	0.6000
T5	12	T-Brackets (Af)	80.00 - 100.00	0.6000	0.6000
T5	17	Feedline Ladder (Af)	80.00 - 94.00	0.6000	0.6000
T5	19	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T5	20	LDF4-50A(1/2")	80.00 - 87.00	0.6000	0.6000
T5	22	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T5	25	T-Brackets (Af)	80.00 - 100.00	0.6000	0.6000
T5	27	Thin Flat Bar Climbing Ladder	80.00 - 100.00	0.6000	0.6000
T5	28	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T6	1	FSJ4-50B(1/2")	60.00 - 80.00	0.6000	0.6000
T6	3	AL5-50(7/8)	60.00 - 80.00	0.6000	0.6000
T6	4	LDF6-50A(1-1/4")	60.00 - 80.00	0.6000	0.6000
T6	5	EW52(ELLIPTICAL)	60.00 - 80.00	0.6000	0.6000
T6	6	LDF2-50(3/8")	60.00 - 80.00	0.6000	0.6000
T6	7	T-Bracket	60.00 - 80.00	0.6000	0.6000
T6	9	LDF2-50(3/8")	60.00 - 80.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	10	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.6000
T6	11	WR-VG82ST-BRDA(5/8")	60.00 - 80.00	0.6000	0.6000
T6	12	T-Brackets (Af)	60.00 - 80.00	0.6000	0.6000
T6	17	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T6	19	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.6000
T6	20	LDF4-50A(1/2")	71.00 - 80.00	0.6000	0.6000
T6	21	LDF4-50A(1/2")	60.00 - 71.00	0.6000	0.6000
T6	22	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.6000
T6	25	T-Brackets (Af)	60.00 - 80.00	0.6000	0.6000
T6	27	Thin Flat Bar Climbing Ladder	60.00 - 80.00	0.6000	0.6000
T6	28	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T7	1	FSJ4-50B(1/2")	40.00 - 60.00	0.6000	0.6000
T7	3	AL5-50(7/8)	40.00 - 60.00	0.6000	0.6000
T7	4	LDF6-50A(1-1/4")	40.00 - 60.00	0.6000	0.6000
T7	5	EW52(ELLIPTICAL)	40.00 - 60.00	0.6000	0.6000
T7	6	LDF2-50(3/8")	40.00 - 60.00	0.6000	0.6000
T7	7	T-Bracket	40.00 - 60.00	0.6000	0.6000
T7	9	LDF2-50(3/8")	40.00 - 60.00	0.6000	0.6000
T7	10	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T7	11	WR-VG82ST-BRDA(5/8")	40.00 - 60.00	0.6000	0.6000
T7	12	T-Brackets (Af)	40.00 - 60.00	0.6000	0.6000
T7	17	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T7	19	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T7	21	LDF4-50A(1/2")	40.00 - 60.00	0.6000	0.6000
T7	22	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T7	25	T-Brackets (Af)	40.00 - 60.00	0.6000	0.6000
T7	27	Thin Flat Bar Climbing Ladder	40.00 - 60.00	0.6000	0.6000
T7	28	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T8	1	FSJ4-50B(1/2")	20.00 - 40.00	0.6000	0.6000
T8	3	AL5-50(7/8)	20.00 - 40.00	0.6000	0.6000
T8	4	LDF6-50A(1-1/4")	20.00 - 40.00	0.6000	0.6000
T8	5	EW52(ELLIPTICAL)	20.00 - 40.00	0.6000	0.6000
T8	6	LDF2-50(3/8")	20.00 - 40.00	0.6000	0.6000
T8	7	T-Bracket	20.00 - 40.00	0.6000	0.6000
T8	9	LDF2-50(3/8")	20.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	10	LDF7-50A(1-5/8")	40.00 20.00 - 40.00	0.6000	0.6000
T8	11	WR-VG82ST-BRDA(5/8")	20.00 - 40.00	0.6000	0.6000
T8	12	T-Brackets (Af)	20.00 - 40.00	0.6000	0.6000
T8	17	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T8	19	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T8	21	LDF4-50A(1/2")	20.00 - 40.00	0.6000	0.6000
T8	22	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T8	25	T-Brackets (Af)	20.00 - 40.00	0.6000	0.6000
T8	27	Thin Flat Bar Climbing Ladder	20.00 - 40.00	0.6000	0.6000
T8	28	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T9	1	FSJ4-50B(1/2")	0.00 - 20.00	0.6000	0.6000
T9	3	AL5-50(7/8)	0.00 - 20.00	0.6000	0.6000
T9	4	LDF6-50A(1-1/4")	0.00 - 20.00	0.6000	0.6000
T9	5	EW52(ELLIPTICAL)	0.00 - 20.00	0.6000	0.6000
T9	6	LDF2-50(3/8")	0.00 - 20.00	0.6000	0.6000
T9	7	T-Bracket	0.00 - 20.00	0.6000	0.6000
T9	9	LDF2-50(3/8")	0.00 - 20.00	0.6000	0.6000
T9	10	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	11	WR-VG82ST-BRDA(5/8")	0.00 - 20.00	0.6000	0.6000
T9	12	T-Brackets (Af)	0.00 - 20.00	0.6000	0.6000
T9	17	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T9	19	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	21	LDF4-50A(1/2")	0.00 - 20.00	0.6000	0.6000
T9	22	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	25	T-Brackets (Af)	0.00 - 20.00	0.6000	0.6000
T9	27	Thin Flat Bar Climbing Ladder	0.00 - 20.00	0.6000	0.6000
T9	28	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lightning Rod 5/8" x 5' (E)	A	From Leg	0.000 0.000 2.500	0.000	170.000	No Ice 1/2" Ice 1" Ice	0.313 0.826 1.322	0.313 0.826 1.322	0.031 0.035 0.041
170 DB806-XC (E)	C	From Leg	0.500 0.000 4.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	1.140 1.675 2.025	1.140 1.675 2.025	0.021 0.030 0.043
Pipe Mount [PM 601-1]	C	From Leg	0.500 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice	3.000 3.740 4.480	0.900 1.120 1.340	0.065 0.079 0.093

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
169									
APXVSPP18-C-A20 w/ Mount Pipe (E)	A	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	8.498 9.149 9.767	6.946 8.127 9.021	0.083 0.151 0.227
APXVSPP18-C-A20 w/ Mount Pipe (E)	B	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	8.498 9.149 9.767	6.946 8.127 9.021	0.083 0.151 0.227
1900MHz RRH (65MHz) (E)	A	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	2.698 2.936 3.183	2.771 3.011 3.260	0.060 0.084 0.111
1900MHz RRH (65MHz) (E)	B	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	2.698 2.936 3.183	2.771 3.011 3.260	0.060 0.084 0.111
800 EXTERNAL NOTCH FILTER (E)	A	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	0.770 0.890 1.018	0.375 0.465 0.563	0.011 0.017 0.024
800 EXTERNAL NOTCH FILTER (E)	B	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	0.770 0.890 1.018	0.375 0.465 0.563	0.011 0.017 0.024
800MHZ RRH (E)	A	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	2.490 2.706 2.931	2.068 2.271 2.481	0.053 0.074 0.098
800MHZ RRH (E)	B	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	2.490 2.706 2.931	2.068 2.271 2.481	0.053 0.074 0.098
(3) ACU-A20-N (E)	A	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	0.078 0.121 0.173	0.136 0.189 0.251	0.001 0.002 0.004
(3) ACU-A20-N (E)	B	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	0.078 0.121 0.173	0.136 0.189 0.251	0.001 0.002 0.004
(2) 5' x 2" Pipe Mount (E)	A	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	1.000 1.393 1.703	1.000 1.393 1.703	0.029 0.037 0.048
(2) 5' x 2" Pipe Mount (E)	B	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	1.000 1.393 1.703	1.000 1.393 1.703	0.029 0.037 0.048
(3) 7'x2" Antenna Mount Pipe (E-Per Photo)	A	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	1.663 2.391 2.825	1.663 2.391 2.825	0.026 0.039 0.056
(3) 7'x2" Antenna Mount Pipe (E-Per Photo)	B	From Leg	4.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	1.663 2.391 2.825	1.663 2.391 2.825	0.026 0.039 0.056
Pipe Mount [PM 602-1] (E-Per Photo)	A	From Leg	1.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	5.250 6.500 7.750	1.580 1.950 2.320	0.093 0.118 0.142
Pipe Mount [PM 602-1] (E-Per Photo)	B	From Leg	1.000 0.000 0.000	0.000	169.000	No Ice 1/2" Ice 1" Ice	5.250 6.500 7.750	1.580 1.950 2.320	0.093 0.118 0.142

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Sector Mount [SM 302-1]	A	From Leg	2.000	0.000	169.000	No Ice	18.210	10.890	0.492
(E)			0.000			1/2" Ice	23.760	15.230	0.690
			0.000			1" Ice	29.310	19.570	0.888
Sector Mount [SM 302-1]	B	From Leg	2.000	0.000	169.000	No Ice	18.210	10.890	0.492
(E)			0.000			1/2" Ice	23.760	15.230	0.690
			0.000			1" Ice	29.310	19.570	0.888
165									
TFC2K	C	From Leg	3.000	0.000	165.000	No Ice	65.469	88.492	0.072
(E)			0.000			1/2" Ice	66.728	89.854	0.684
			8.000			1" Ice	67.995	91.225	1.313
TFC2K	C	From Leg	3.000	0.000	165.000	No Ice	65.469	88.492	0.072
(E)			0.000			1/2" Ice	66.728	89.854	0.684
			0.000			1" Ice	67.995	91.225	1.313
15' x 2" Pipe Mount	C	From Leg	2.000	0.000	165.000	No Ice	7.125	7.125	0.000
(E-Per Photo)			0.000			1/2" Ice	10.153	10.153	0.053
			0.000			1" Ice	13.198	13.198	0.125
Side Arm Mount [SO 305-1]	C	From Leg	1.500	0.000	165.000	No Ice	0.940	1.410	0.030
(E)			0.000			1/2" Ice	1.480	2.170	0.043
			0.000			1" Ice	2.020	2.930	0.057
151									
(2) P65.15.XL.0 w/ Mount Pipe	B	From Leg	4.000	0.000	151.000	No Ice	5.838	3.665	0.061
(E)			0.000			1/2" Ice	6.292	4.278	0.105
			0.000			1" Ice	6.756	4.902	0.155
(2) P65.15.XL.0 w/ Mount Pipe	C	From Leg	4.000	0.000	151.000	No Ice	5.838	3.665	0.061
(E)			0.000			1/2" Ice	6.292	4.278	0.105
			0.000			1" Ice	6.756	4.902	0.155
Pipe Mount [PM 602-1]	B	From Leg	0.500	0.000	151.000	No Ice	5.250	1.580	0.093
(E-Per Photo)			0.000			1/2" Ice	6.500	1.950	0.118
			0.000			1" Ice	7.750	2.320	0.142
Pipe Mount [PM 602-1]	C	From Leg	0.500	0.000	151.000	No Ice	5.250	1.580	0.093
(E-Per Photo)			0.000			1/2" Ice	6.500	1.950	0.118
			0.000			1" Ice	7.750	2.320	0.142
Sector Mount [SM 602-1]	B	From Leg	2.000	0.000	151.000	No Ice	18.810	10.620	0.513
(E)			0.000			1/2" Ice	24.750	15.160	0.720
			0.000			1" Ice	30.690	19.700	0.926
Sector Mount [SM 602-1]	C	From Leg	2.000	0.000	151.000	No Ice	18.810	10.620	0.513
(E)			0.000			1/2" Ice	24.750	15.160	0.720
			0.000			1" Ice	30.690	19.700	0.926
145									
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.000	0.000	145.000	No Ice	8.498	6.304	0.074
(E)			0.000			1/2" Ice	9.149	7.479	0.139
			0.000			1" Ice	9.767	8.368	0.212
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.000	0.000	145.000	No Ice	8.498	6.304	0.074
(E)			0.000			1/2" Ice	9.149	7.479	0.139
			0.000			1" Ice	9.767	8.368	0.212
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.000	0.000	145.000	No Ice	8.498	6.304	0.074
(E)			0.000			1/2" Ice	9.149	7.479	0.139
			0.000			1" Ice	9.767	8.368	0.212
(2) 800 10122 w/ Mount Pipe	A	From Leg	4.000	0.000	145.000	No Ice	7.855	6.653	0.086
			0.000			1/2"	8.462	7.876	0.150

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(E)			0.000			Ice	9.099	8.848	0.222
						1" Ice			
(2) 800 10122 w/ Mount Pipe	B	From Leg	4.000	0.000	145.000	No Ice	7.855	6.653	0.086
			0.000			1/2"	8.462	7.876	0.150
(E)			0.000			Ice	9.099	8.848	0.222
						1" Ice			
(2) 800 10122 w/ Mount Pipe	C	From Leg	4.000	0.000	145.000	No Ice	7.855	6.653	0.086
			0.000			1/2"	8.462	7.876	0.150
(E)			0.000			Ice	9.099	8.848	0.222
						1" Ice			
RRUS 11	A	From Leg	4.000	0.000	145.000	No Ice	3.249	1.373	0.051
(E)			0.000			1/2"	3.491	1.551	0.072
			0.000			Ice	3.741	1.738	0.095
						1" Ice			
RRUS 11	B	From Leg	4.000	0.000	145.000	No Ice	3.249	1.373	0.051
(E)			0.000			1/2"	3.491	1.551	0.072
			0.000			Ice	3.741	1.738	0.095
						1" Ice			
RRUS 11	C	From Leg	4.000	0.000	145.000	No Ice	3.249	1.373	0.051
(E)			0.000			1/2"	3.491	1.551	0.072
			0.000			Ice	3.741	1.738	0.095
						1" Ice			
(2) 782-10250	A	From Leg	4.000	0.000	145.000	No Ice	0.524	0.267	0.006
(E)			0.000			1/2"	0.631	0.359	0.010
			0.000			Ice	0.747	0.460	0.015
						1" Ice			
(2) 782-10250	B	From Leg	4.000	0.000	145.000	No Ice	0.524	0.267	0.006
(E)			0.000			1/2"	0.631	0.359	0.010
			0.000			Ice	0.747	0.460	0.015
						1" Ice			
(2) 782-10250	C	From Leg	4.000	0.000	145.000	No Ice	0.524	0.267	0.006
(E)			0.000			1/2"	0.631	0.359	0.010
			0.000			Ice	0.747	0.460	0.015
						1" Ice			
(4) 860 10025	A	From Leg	4.000	0.000	145.000	No Ice	0.163	0.136	0.001
(E)			0.000			1/2"	0.229	0.199	0.003
			0.000			Ice	0.302	0.270	0.005
						1" Ice			
(4) 860 10025	B	From Leg	4.000	0.000	145.000	No Ice	0.163	0.136	0.001
(E)			0.000			1/2"	0.229	0.199	0.003
			0.000			Ice	0.302	0.270	0.005
						1" Ice			
(4) 860 10025	C	From Leg	4.000	0.000	145.000	No Ice	0.163	0.136	0.001
(E)			0.000			1/2"	0.229	0.199	0.003
			0.000			Ice	0.302	0.270	0.005
						1" Ice			
(2) LGP21401	A	From Leg	4.000	0.000	145.000	No Ice	1.288	0.233	0.014
(E)			0.000			1/2"	1.445	0.313	0.021
			0.000			Ice	1.611	0.403	0.030
						1" Ice			
(2) LGP21401	B	From Leg	4.000	0.000	145.000	No Ice	1.288	0.233	0.014
(E)			0.000			1/2"	1.445	0.313	0.021
			0.000			Ice	1.611	0.403	0.030
						1" Ice			
(2) LGP21401	C	From Leg	4.000	0.000	145.000	No Ice	1.288	0.233	0.014
(E)			0.000			1/2"	1.445	0.313	0.021
			0.000			Ice	1.611	0.403	0.030
						1" Ice			
DC6-48-60-18-8F	B	From Leg	1.000	0.000	145.000	No Ice	1.467	1.467	0.033
(E-Per Photo)			0.000			1/2"	1.667	1.667	0.051
			0.000			Ice	1.878	1.878	0.071
						1" Ice			
RRUS 11	A	From Leg	4.000	0.000	145.000	No Ice	3.249	1.373	0.051
(R)			0.000			1/2"	3.491	1.551	0.072
			0.000			Ice	3.741	1.738	0.095

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
							1" Ice			
RRUS 11 (R)	B	From Leg	4.000	0.000	0.000	145.000	No Ice	3.249	1.373	0.051
			0.000				1/2" Ice	3.491	1.551	0.072
			0.000				1" Ice	3.741	1.738	0.095
RRUS 11 (R)	C	From Leg	4.000	0.000	0.000	145.000	No Ice	3.249	1.373	0.051
			0.000				1/2" Ice	3.491	1.551	0.072
			0.000				1" Ice	3.741	1.738	0.095
6' x 2" Mount Pipe (E)	A	From Leg	4.000	0.000	0.000	145.000	No Ice	1.425	1.425	0.022
			0.000				1/2" Ice	1.925	1.925	0.033
			0.000				1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe (E)	B	From Leg	4.000	0.000	0.000	145.000	No Ice	1.425	1.425	0.022
			0.000				1/2" Ice	1.925	1.925	0.033
			0.000				1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe (E)	C	From Leg	4.000	0.000	0.000	145.000	No Ice	1.425	1.425	0.022
			0.000				1/2" Ice	1.925	1.925	0.033
			0.000				1" Ice	2.294	2.294	0.048
Pipe Mount [PM 602-3] (E)	C	None			0.000	145.000	No Ice	7.680	7.680	0.279
							1/2" Ice	9.500	9.500	0.353
							1" Ice	11.320	11.320	0.427
Sector Mount [SM 302-3] (E)	C	None			0.000	145.000	No Ice	32.730	32.730	1.476
							1/2" Ice	43.850	43.850	2.071
							1" Ice	54.970	54.970	2.665
139										
Pipe Mount [PM 602-1] (E)	C	From Leg	0.500	0.000	0.000	139.000	No Ice	5.250	1.580	0.093
			0.000				1/2" Ice	6.500	1.950	0.118
			0.000				1" Ice	7.750	2.320	0.142
130										
LNX-6514DS-A1M w/ Mount Pipe (Proposed)	A	From Leg	4.000	0.000	0.000	130.000	No Ice	8.648	7.082	0.065
			0.000				1/2" Ice	9.305	8.273	0.134
			0.000				1" Ice	9.930	9.185	0.211
LNX-6514DS-A1M w/ Mount Pipe (Proposed)	B	From Leg	4.000	0.000	0.000	130.000	No Ice	8.648	7.082	0.065
			0.000				1/2" Ice	9.305	8.273	0.134
			0.000				1" Ice	9.930	9.185	0.211
LNX-6514DS-A1M w/ Mount Pipe (Proposed)	C	From Leg	4.000	0.000	0.000	130.000	No Ice	8.648	7.082	0.065
			0.000				1/2" Ice	9.305	8.273	0.134
			0.000				1" Ice	9.930	9.185	0.211
HBXX-6516DS-A2M w/ Mount Pipe (Proposed)	A	From Leg	4.000	0.000	0.000	130.000	No Ice	6.176	4.525	0.050
			0.000				1/2" Ice	6.655	5.205	0.099
			0.000				1" Ice	7.137	5.899	0.154
HBXX-6516DS-A2M w/ Mount Pipe (Proposed)	B	From Leg	4.000	0.000	0.000	130.000	No Ice	6.176	4.525	0.050
			0.000				1/2" Ice	6.655	5.205	0.099
			0.000				1" Ice	7.137	5.899	0.154
HBXX-6516DS-A2M w/ Mount Pipe (Proposed)	C	From Leg	4.000	0.000	0.000	130.000	No Ice	6.176	4.525	0.050
			0.000				1/2" Ice	6.655	5.205	0.099
			0.000				1" Ice	7.137	5.899	0.154
SBNHH-1D65B w/ Mount Pipe (Proposed)	A	From Leg	4.000	0.000	0.000	130.000	No Ice	8.533	7.004	0.076
			0.000				1/2" Ice	9.184	8.185	0.145
			0.000				1" Ice	9.803	9.081	0.221
SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	130.000	No Ice	8.533	7.004	0.076
			0.000				1/2" Ice	9.184	8.185	0.145

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(Proposed)			0.000				Ice	9.803	9.081	0.221
							1" Ice			
SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.000		0.000	130.000	No Ice	8.533	7.004	0.076
			0.000				1/2"	9.184	8.185	0.145
(Proposed)			0.000				Ice	9.803	9.081	0.221
							1" Ice			
X7C-665-2 w/ Mount Pipe	A	From Leg	4.000		0.000	130.000	No Ice	8.988	6.946	0.053
(Installed)			0.000				1/2"	9.644	8.127	0.123
			0.000				Ice	10.266	9.021	0.201
							1" Ice			
X7C-665-2 w/ Mount Pipe	B	From Leg	4.000		0.000	130.000	No Ice	8.988	6.946	0.053
(Installed)			0.000				1/2"	9.644	8.127	0.123
			0.000				Ice	10.266	9.021	0.201
							1" Ice			
X7C-680-2 w/ Mount Pipe	C	From Leg	4.000		0.000	130.000	No Ice	8.988	7.296	0.055
(Proposed)			0.000				1/2"	9.644	8.480	0.126
			0.000				Ice	10.266	9.378	0.206
							1" Ice			
PCS B25 RRH4x30	A	From Leg	4.000		0.000	130.000	No Ice	2.567	2.032	0.055
(Proposed)			0.000				1/2"	2.791	2.240	0.075
			0.000				Ice	3.025	2.458	0.099
							1" Ice			
PCS B25 RRH4x30	B	From Leg	4.000		0.000	130.000	No Ice	2.567	2.032	0.055
(Proposed)			0.000				1/2"	2.791	2.240	0.075
			0.000				Ice	3.025	2.458	0.099
							1" Ice			
PCS B25 RRH4x30	C	From Leg	4.000		0.000	130.000	No Ice	2.567	2.032	0.055
(Proposed)			0.000				1/2"	2.791	2.240	0.075
			0.000				Ice	3.025	2.458	0.099
							1" Ice			
DB-B1-6C-12AB-0Z	A	From Leg	4.000		0.000	130.000	No Ice	3.924	2.557	0.021
(Proposed)			0.000				1/2"	4.197	2.794	0.050
			0.000				Ice	4.478	3.040	0.082
							1" Ice			
DB-B1-6C-12AB-0Z	C	From Leg	4.000		0.000	130.000	No Ice	3.924	2.557	0.021
(Proposed)			0.000				1/2"	4.197	2.794	0.050
			0.000				Ice	4.478	3.040	0.082
							1" Ice			
RRH2X60-AWS	A	From Leg	4.000		0.000	130.000	No Ice	3.957	1.816	0.060
(Proposed)			0.000				1/2"	4.272	2.075	0.083
			0.000				Ice	4.596	2.360	0.109
							1" Ice			
RRH2X60-AWS	B	From Leg	4.000		0.000	130.000	No Ice	3.957	1.816	0.060
(Proposed)			0.000				1/2"	4.272	2.075	0.083
			0.000				Ice	4.596	2.360	0.109
							1" Ice			
RRH2X60-AWS	C	From Leg	4.000		0.000	130.000	No Ice	3.957	1.816	0.060
(Proposed)			0.000				1/2"	4.272	2.075	0.083
			0.000				Ice	4.596	2.360	0.109
							1" Ice			
Pipe Mount [PM 602-3]	C	None			0.000	130.000	No Ice	7.680	7.680	0.279
(E)							1/2"	9.500	9.500	0.353
							Ice	11.320	11.320	0.427
							1" Ice			
Sector Mount [SM 302-3]	C	None			0.000	130.000	No Ice	32.730	32.730	1.476
(E)							1/2"	43.850	43.850	2.071
							Ice	54.970	54.970	2.665
							1" Ice			
104										
ANT150F2	B	From Face	4.000		0.000	104.000	No Ice	1.227	1.227	0.013
(E)			0.000				1/2"	1.530	1.530	0.022
			2.000				Ice	1.842	1.842	0.035
							1" Ice			
AO8610-5T0	B	From Face	4.000		0.000	104.000	No Ice	3.960	3.960	0.041
(E)			0.000				1/2"	5.638	5.638	0.071

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			8.000				Ice	7.333	7.333	0.111
							1" Ice			
K751221	B	From Face	4.000	0.000	104.000		No Ice	0.314	0.314	0.004
(E)			0.000				1/2"	0.445	0.445	0.008
			3.000				Ice	0.591	0.591	0.013
							1" Ice			
SRL-210C-4	C	From Face	4.000	0.000	104.000		No Ice	1.000	1.000	0.059
(E)			0.000				1/2"	1.800	1.800	0.077
			10.000				Ice	2.600	2.600	0.094
							1" Ice			
ANT150F6	C	From Face	4.000	0.000	104.000		No Ice	4.800	4.800	0.030
(E)			0.000				1/2"	6.828	6.828	0.066
			12.000				Ice	8.873	8.873	0.114
							1" Ice			
PD220-5	C	From Face	4.000	0.000	104.000		No Ice	6.050	6.050	0.023
(E)			0.000				1/2"	8.281	8.281	0.067
			13.000				Ice	10.529	10.529	0.125
							1" Ice			
AO8610-5T0	A	From Face	4.000	0.000	104.000		No Ice	3.960	3.960	0.041
(E)			0.000				1/2"	5.638	5.638	0.071
			8.000				Ice	7.333	7.333	0.111
							1" Ice			
10191	A	From Face	4.000	0.000	104.000		No Ice	0.640	0.640	0.005
(E)			0.000				1/2"	0.941	0.941	0.010
			2.000				Ice	1.191	1.191	0.018
							1" Ice			
DB540K-F	A	From Face	4.000	0.000	104.000		No Ice	4.500	4.500	0.066
(E)			0.000				1/2"	6.329	6.329	0.099
			9.000				Ice	8.175	8.175	0.144
							1" Ice			
(4) 6' x 2" Mount Pipe	A	From Face	4.000	0.000	104.000		No Ice	1.425	1.425	0.022
(E-Per Photo)			0.000				1/2"	1.925	1.925	0.033
			0.000				Ice	2.294	2.294	0.048
							1" Ice			
(4) 6' x 2" Mount Pipe	B	From Face	4.000	0.000	104.000		No Ice	1.425	1.425	0.022
(E-Per Photo)			0.000				1/2"	1.925	1.925	0.033
			0.000				Ice	2.294	2.294	0.048
							1" Ice			
(4) 6' x 2" Mount Pipe	C	From Face	4.000	0.000	104.000		No Ice	1.425	1.425	0.022
(E-Per Photo)			0.000				1/2"	1.925	1.925	0.033
			0.000				Ice	2.294	2.294	0.048
							1" Ice			
Pipe Mount [PM 601-1]	A	From Face	4.000	0.000	104.000		No Ice	3.000	0.900	0.065
(E-For Dish)			0.000				1/2"	3.740	1.120	0.079
			0.000				Ice	4.480	1.340	0.093
							1" Ice			
Pipe Mount [PM 601-1]	B	From Face	4.000	0.000	104.000		No Ice	3.000	0.900	0.065
(E-For Dish)			0.000				1/2"	3.740	1.120	0.079
			0.000				Ice	4.480	1.340	0.093
							1" Ice			
Sabre 30' Specialty	C	None			0.000	104.000	No Ice	75.000	75.000	3.020
Platform							1/2"	87.000	87.000	3.620
(E)							Ice	99.000	99.000	4.220
							1" Ice			
96										
ERICSSON AIR 21 B2A	A	From Leg	4.000	0.000	0.000	96.000	No Ice	6.825	5.642	0.112
B4P w/ Mount Pipe			0.000				1/2"	7.347	6.480	0.169
(P)			1.000				Ice	7.863	7.257	0.233
							1" Ice			
ERICSSON AIR 21 B2A	B	From Leg	4.000	0.000	0.000	96.000	No Ice	6.825	5.642	0.112
B4P w/ Mount Pipe			0.000				1/2"	7.347	6.480	0.169
(P)			1.000				Ice	7.863	7.257	0.233
							1" Ice			
ERICSSON AIR 21 B2A	C	From Leg	4.000	0.000	0.000	96.000	No Ice	6.825	5.642	0.112
B4P w/ Mount Pipe			0.000				1/2"	7.347	6.480	0.169

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(P)			1.000			Ice 1" Ice	7.863	7.257	0.233
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (P)	A	From Leg	4.000 0.000 1.000	0.000	96.000	No Ice 1/2" Ice 1" Ice	6.825 7.347 7.863	5.642 6.480 7.257	0.112 0.169 0.233
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (P)	B	From Leg	4.000 0.000 1.000	0.000	96.000	No Ice 1/2" Ice 1" Ice	6.825 7.347 7.863	5.642 6.480 7.257	0.112 0.169 0.233
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (P)	C	From Leg	4.000 0.000 1.000	0.000	96.000	No Ice 1/2" Ice 1" Ice	6.825 7.347 7.863	5.642 6.480 7.257	0.112 0.169 0.233
KRY 112 144/1 (P)	A	From Leg	4.000 0.000 1.000	0.000	96.000	No Ice 1/2" Ice 1" Ice	0.411 0.500 0.597	0.189 0.256 0.332	0.011 0.014 0.018
KRY 112 144/1 (P)	B	From Leg	4.000 0.000 1.000	0.000	96.000	No Ice 1/2" Ice 1" Ice	0.411 0.500 0.597	0.189 0.256 0.332	0.011 0.014 0.018
KRY 112 144/1 (P)	C	From Leg	4.000 0.000 1.000	0.000	96.000	No Ice 1/2" Ice 1" Ice	0.411 0.500 0.597	0.189 0.256 0.332	0.011 0.014 0.018
Pipe Mount [PM 602-3] (E)	C	None		0.000	96.000	No Ice 1/2" Ice 1" Ice	7.680 9.500 11.320	7.680 9.500 11.320	0.279 0.353 0.427
Sector Mount [SM 406-3] (E)	C	None		0.000	96.000	No Ice 1/2" Ice 1" Ice	19.830 29.410 38.990	19.830 29.410 38.990	0.923 1.326 1.729
87 Side Arm Mount [SO 201-1] (E)	C	From Leg	0.750 0.000 0.000	0.000	87.000	No Ice 1/2" Ice 1" Ice	2.960 4.100 5.240	2.110 2.930 3.750	0.096 0.117 0.138
71 GPS-TMG-HR-26N (E)	C	From Leg	3.000 0.000 2.000	0.000	71.000	No Ice 1/2" Ice 1" Ice	0.243 0.312 0.390	0.156 0.213 0.279	0.001 0.003 0.006
6' x 2" Mount Pipe (E-Per Photo)	C	From Leg	3.000 0.000 0.000	0.000	71.000	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
Side Arm Mount [SO 601-1] (E)	C	From Leg	1.500 0.000 0.000	0.000	71.000	No Ice 1/2" Ice 1" Ice	1.220 1.850 2.480	6.300 8.610 10.920	0.159 0.197 0.234

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
PAR6-59A (E)	C	Paraboloid w/Radome	From Leg	1.000 0.000 -1.000	11.000		139.000	6.000	No Ice 1/2" Ice 1" Ice	28.270 29.070 29.860	0.143 0.290 0.440
104											
VHLPX4-11W-6WH (E)	B	Paraboloid w/o Radome	From Face	4.000 0.000 2.000	-19.000		104.000	4.108	No Ice 1/2" Ice 1" Ice	13.256 13.800 14.343	0.088 0.159 0.230
VHLPX4-11W-6WH (E)	C	Paraboloid w/o Radome	From Face	4.000 0.000 2.000	1.000		104.000	4.108	No Ice 1/2" Ice 1" Ice	13.256 13.800 14.343	0.088 0.159 0.230
87											
PR-950 (E)	C	Grid	From Leg	1.500 0.000 0.000	1.000		87.000	5.667	No Ice 1/2" Ice 1" Ice	25.220 25.970 26.710	0.038 0.170 0.300

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service

Comb. No.	Description
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	170 - 160	Leg	Max Tension	23	10.683	0.132	0.120
			Max. Compression	2	-13.548	-0.086	0.155
			Max. Mx	14	-0.844	1.170	0.350
			Max. My	11	-0.793	-0.273	-1.540
			Max. Vy	22	-3.032	-0.479	-0.345
			Max. Vx	24	8.681	0.003	-0.141
		Diagonal	Max Tension	22	9.545	0.000	0.000
			Max. Compression	2	-9.579	0.000	0.000
			Max. Mx	36	0.183	0.046	0.006
			Max. My	24	-6.917	0.027	0.020
			Max. Vy	36	0.044	0.046	0.006
			Max. Vx	24	-0.004	0.000	0.000
		Top Girt	Max Tension	23	0.545	0.000	0.000
			Max. Compression	10	-0.609	0.000	0.000
			Max. Mx	26	-0.074	-0.122	0.000
			Max. My	26	-0.078	0.000	0.004
			Max. Vy	26	0.061	0.000	0.000
			Max. Vx	26	-0.002	0.000	0.000
T2	160 - 140	Leg	Max Tension	15	47.934	-1.580	0.058
			Max. Compression	10	-56.481	1.023	-0.031
			Max. Mx	22	31.525	-1.706	0.203
			Max. My	12	-2.273	-0.106	-1.699
			Max. Vy	22	-1.931	-1.706	0.203
			Max. Vx	16	1.890	-0.110	1.694
		Diagonal	Max Tension	22	12.625	0.000	0.000
			Max. Compression	10	-12.919	0.000	0.000
			Max. Mx	35	0.917	0.097	-0.012
			Max. My	12	1.086	0.049	-0.046
			Max. Vy	33	0.075	0.095	0.011
			Max. Vx	12	0.009	0.000	0.000
T3	140 - 120	Leg	Max Tension	23	102.870	-1.705	-0.087
			Max. Compression	10	-120.282	0.687	-0.149
			Max. Mx	14	79.545	2.684	0.059
			Max. My	20	-11.316	-0.066	2.713
			Max. Vy	14	1.386	-1.740	0.059
			Max. Vx	21	1.422	-0.044	-1.850
		Diagonal	Max Tension	8	16.206	0.000	0.000
			Max. Compression	10	-16.663	0.000	0.000
			Max. Mx	35	1.415	0.151	-0.018
			Max. My	12	5.921	0.088	-0.043
			Max. Vy	33	0.100	0.145	0.017
			Max. Vx	12	0.008	0.000	0.000
T4	120 - 100	Leg	Max Tension	23	165.801	-1.628	-0.056
			Max. Compression	10	-193.719	4.779	-0.445
			Max. Mx	11	-190.642	4.793	-0.445
			Max. My	12	-9.875	-0.059	-4.558
			Max. Vy	6	1.501	-4.650	0.015
			Max. Vx	17	1.707	-0.007	1.451
		Diagonal	Max Tension	20	17.991	0.000	0.000
			Max. Compression	20	-18.242	0.000	0.000
			Max. Mx	33	1.092	0.208	-0.027
			Max. My	12	9.730	0.131	-0.035
			Max. Vy	33	0.129	0.208	-0.027
			Max. Vx	31	0.007	0.000	0.000
T5	100 - 80	Leg	Max Tension	23	231.964	-2.417	-0.013
			Max. Compression	10	-269.505	4.351	-0.365

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	11	-222.278	4.793	-0.445
			Max. My	12	-10.883	-0.059	-4.558
			Max. Vy	22	-1.140	-4.747	0.357
			Max. Vx	13	-1.011	-0.044	-4.557
		Diagonal	Max Tension	20	23.947	0.000	0.000
			Max. Compression	20	-24.134	0.000	0.000
			Max. Mx	10	15.680	0.445	-0.068
			Max. My	10	-22.965	-0.049	-0.085
			Max. Vy	33	0.202	0.399	-0.054
			Max. Vx	10	0.012	0.000	0.000
T6	80 - 60	Leg	Max Tension	23	305.634	-3.821	-0.092
			Max. Compression	10	-353.734	5.201	0.056
			Max. Mx	10	-353.734	5.201	0.056
			Max. My	12	-20.127	0.037	-5.003
			Max. Vy	2	-0.443	5.144	-0.070
			Max. Vx	12	0.712	-0.182	-4.408
		Diagonal	Max Tension	20	25.695	0.000	0.000
			Max. Compression	20	-25.856	0.000	0.000
			Max. Mx	10	17.204	0.556	-0.070
			Max. My	10	-24.359	0.036	-0.077
			Max. Vy	33	0.251	0.538	0.065
			Max. Vx	32	0.013	0.000	0.000
T7	60 - 40	Leg	Max Tension	23	378.007	-7.171	-0.106
			Max. Compression	10	-438.214	8.380	0.141
			Max. Mx	10	-438.214	8.380	0.141
			Max. My	12	-23.002	-0.139	-6.843
			Max. Vy	22	0.577	-7.203	-0.100
			Max. Vx	12	0.567	-0.139	-6.843
		Diagonal	Max Tension	20	27.295	0.000	0.000
			Max. Compression	20	-27.570	0.000	0.000
			Max. Mx	33	1.831	0.634	0.076
			Max. My	32	-2.390	0.607	-0.081
			Max. Vy	33	0.273	0.634	0.076
			Max. Vx	32	0.014	0.000	0.000
T8	40 - 20	Leg	Max Tension	23	448.724	-9.577	-0.092
			Max. Compression	10	-522.161	2.233	1.480
			Max. Mx	11	-474.209	9.705	0.087
			Max. My	12	-30.372	-0.208	-12.947
			Max. Vy	2	1.070	9.574	-0.156
			Max. Vx	12	1.006	-0.208	-12.947
		Diagonal	Max Tension	20	29.464	0.000	0.000
			Max. Compression	10	-29.917	0.000	0.000
			Max. Mx	33	1.726	0.743	0.088
			Max. My	32	1.707	0.742	-0.092
			Max. Vy	33	0.293	0.743	0.088
			Max. Vx	32	0.015	0.000	0.000
T9	20 - 0	Leg	Max Tension	23	497.116	1.186	0.401
			Max. Compression	10	-581.474	0.000	0.000
			Max. Mx	10	-581.471	24.037	1.055
			Max. My	12	-33.947	-1.948	-12.639
			Max. Vy	10	-5.856	24.037	1.055
			Max. Vx	12	-3.153	-1.948	-12.639
		Diagonal	Max Tension	21	37.159	-0.054	-0.021
			Max. Compression	10	-38.988	0.000	0.000
			Max. Mx	12	-19.595	0.436	-0.029
			Max. My	29	-1.420	0.165	-0.048
			Max. Vy	30	-0.149	0.222	0.048
			Max. Vx	31	0.011	0.000	0.000
		Horizontal	Max Tension	20	28.663	-0.266	0.008
			Max. Compression	10	-28.849	0.000	0.000
			Max. Mx	33	-2.487	-0.489	0.003
			Max. My	2	5.921	-0.213	0.139
			Max. Vy	33	-0.210	-0.453	-0.008
			Max. Vx	2	0.014	-0.213	0.139
		Redund Horz 1 Bracing	Max Tension	10	10.176	0.000	0.000
			Max. Compression	10	-10.093	0.000	0.000
			Max. Mx	26	1.282	-0.075	0.000
			Max. My	26	1.524	0.000	0.002

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	26	-0.050	0.000	0.000
			Max. Vx	26	-0.001	0.000	0.000
		Redund Diag 1 Bracing	Max Tension	10	6.525	0.000	0.000
			Max. Compression	10	-6.525	0.000	0.000
			Max. Mx	26	1.502	-0.083	0.000
			Max. My	26	1.516	0.000	0.003
			Max. Vy	26	0.044	0.000	0.000
			Max. Vx	26	0.002	0.000	0.000
		Inner Bracing	Max Tension	3	0.016	0.000	0.000
			Max. Compression	22	-0.036	0.000	0.000
			Max. Mx	26	-0.021	-0.247	0.000
			Max. Vy	26	0.082	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	613.566	67.633	-38.600
	Max. H_x	18	613.566	67.633	-38.600
	Max. H_z	5	-445.351	-47.337	36.302
	Min. Vert	7	-522.106	-59.806	34.263
	Min. H_x	7	-522.106	-59.806	34.263
	Min. H_z	16	513.005	52.019	-38.821
Leg B	Max. Vert	10	625.600	-69.665	-36.947
	Max. H_x	23	-534.576	61.666	32.577
	Max. H_z	25	-459.454	50.164	33.127
	Min. Vert	23	-534.576	61.666	32.577
	Min. H_x	10	625.600	-69.665	-36.947
	Min. H_z	10	625.600	-69.665	-36.947
Leg A	Max. Vert	2	621.147	-2.441	78.599
	Max. H_x	19	-260.230	11.430	-35.219
	Max. H_z	2	621.147	-2.441	78.599
	Min. Vert	15	-532.260	2.438	-69.482
	Min. H_x	8	26.240	-11.169	2.227
	Min. H_z	15	-532.260	2.438	-69.482

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	93.464	0.000	-0.000	26.567	20.527	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	112.157	-0.996	-133.968	-12638.812	203.730	-106.207
0.9 Dead+1.6 Wind 0 deg - No Ice	84.118	-0.996	-133.968	-12646.782	197.572	-106.207
1.2 Dead+1.6 Wind 30 deg - No Ice	112.157	62.094	-110.220	-10446.615	-5792.634	-53.680
0.9 Dead+1.6 Wind 30 deg - No Ice	84.118	62.094	-110.220	-10454.585	-5798.792	-53.680
1.2 Dead+1.6 Wind 60 deg - No Ice	112.157	108.996	-63.538	-5970.815	-10295.612	12.894
0.9 Dead+1.6 Wind 60 deg - No Ice	84.118	108.996	-63.538	-5978.785	-10301.770	12.894
1.2 Dead+1.6 Wind 90 deg - No Ice	112.157	126.408	1.223	241.308	-11981.609	75.286
0.9 Dead+1.6 Wind 90 deg - No Ice	84.118	126.408	1.223	233.338	-11987.767	75.286
1.2 Dead+1.6 Wind 120 deg	112.157	115.947	67.641	6509.374	-10947.183	121.783

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
- No Ice						
0.9 Dead+1.6 Wind 120 deg - No Ice	84.118	115.947	67.641	6501.404	-10953.341	121.783
1.2 Dead+1.6 Wind 150 deg - No Ice	112.157	63.557	110.524	10608.971	-6085.272	128.235
0.9 Dead+1.6 Wind 150 deg - No Ice	84.118	63.557	110.524	10601.001	-6091.430	128.235
1.2 Dead+1.6 Wind 180 deg - No Ice	112.157	0.583	126.943	12138.794	-122.244	105.473
0.9 Dead+1.6 Wind 180 deg - No Ice	84.118	0.583	126.943	12130.824	-128.402	105.473
1.2 Dead+1.6 Wind 210 deg - No Ice	112.157	-62.524	109.443	10414.898	5877.449	50.752
0.9 Dead+1.6 Wind 210 deg - No Ice	84.118	-62.524	109.443	10406.928	5871.291	50.752
1.2 Dead+1.6 Wind 240 deg - No Ice	112.157	-114.914	66.499	6249.185	10796.545	-17.337
0.9 Dead+1.6 Wind 240 deg - No Ice	84.118	-114.914	66.499	6241.215	10790.387	-17.337
1.2 Dead+1.6 Wind 270 deg - No Ice	112.157	-126.392	-0.382	-89.868	12017.309	-79.969
0.9 Dead+1.6 Wind 270 deg - No Ice	84.118	-126.392	-0.382	-97.838	12011.150	-79.969
1.2 Dead+1.6 Wind 300 deg - No Ice	112.157	-109.650	-64.657	-6218.600	10476.624	-116.671
0.9 Dead+1.6 Wind 300 deg - No Ice	84.118	-109.650	-64.657	-6226.570	10470.466	-116.671
1.2 Dead+1.6 Wind 330 deg - No Ice	112.157	-63.317	-110.615	-10557.794	6093.334	-126.187
0.9 Dead+1.6 Wind 330 deg - No Ice	84.118	-63.317	-110.615	-10565.764	6087.176	-126.187
1.2 Dead+1.0 Ice+1.0 Temp	230.476	0.000	-0.000	99.535	139.935	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	230.476	0.045	-15.465	-1356.720	142.808	-10.020
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	230.476	7.564	-13.131	-1134.293	-564.463	-5.364
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	230.476	12.994	-7.534	-608.969	-1084.770	0.319
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	230.476	15.166	0.020	108.876	-1285.332	5.849
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	230.476	13.471	7.677	829.068	-1129.804	10.593
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	230.476	7.584	13.129	1338.474	-578.352	11.959
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	230.476	0.036	14.987	1517.654	129.746	10.335
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	230.476	-7.505	13.070	1325.962	839.057	5.733
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	230.476	-13.309	7.683	817.827	1387.417	-0.565
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	230.476	-15.118	-0.031	90.389	1560.100	-6.774
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	230.476	-12.982	-7.581	-624.093	1369.048	-10.644
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	230.476	-7.556	-13.142	-1140.861	854.220	-11.796
Dead+Wind 0 deg - Service	93.464	-0.156	-20.932	-1953.229	48.511	-16.595
Dead+Wind 30 deg - Service	93.464	9.702	-17.222	-1610.698	-888.421	-8.388
Dead+Wind 60 deg - Service	93.464	17.031	-9.928	-911.354	-1592.011	2.015
Dead+Wind 90 deg - Service	93.464	19.751	0.191	59.290	-1855.448	11.763
Dead+Wind 120 deg - Service	93.464	18.117	10.569	1038.675	-1693.819	19.029
Dead+Wind 150 deg - Service	93.464	9.931	17.269	1679.237	-934.146	20.037
Dead+Wind 180 deg - Service	93.464	0.091	19.835	1918.272	-2.422	16.480
Dead+Wind 210 deg - Service	93.464	-9.769	17.100	1648.913	935.029	7.930
Dead+Wind 240 deg -	93.464	-17.955	10.391	998.021	1703.638	-2.709

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Service						
Dead+Wind 270 deg - Service	93.464	-19.749	-0.060	7.544	1894.383	-12.495
Dead+Wind 300 deg - Service	93.464	-17.133	-10.103	-950.071	1653.651	-18.230
Dead+Wind 330 deg - Service	93.464	-9.893	-17.284	-1628.070	968.762	-19.717

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-93.464	0.000	0.000	93.464	0.000	0.000%
2	-0.996	-112.157	-133.968	0.996	112.157	133.968	0.000%
3	-0.996	-84.118	-133.968	0.996	84.118	133.968	0.000%
4	62.094	-112.157	-110.220	-62.094	112.157	110.220	0.000%
5	62.094	-84.118	-110.220	-62.094	84.118	110.220	0.000%
6	108.996	-112.157	-63.538	-108.996	112.157	63.538	0.000%
7	108.996	-84.118	-63.538	-108.996	84.118	63.538	0.000%
8	126.408	-112.157	1.223	-126.408	112.157	-1.223	0.000%
9	126.408	-84.118	1.223	-126.408	84.118	-1.223	0.000%
10	115.947	-112.157	67.641	-115.947	112.157	-67.641	0.000%
11	115.947	-84.118	67.641	-115.947	84.118	-67.641	0.000%
12	63.557	-112.157	110.524	-63.557	112.157	-110.524	0.000%
13	63.557	-84.118	110.524	-63.557	84.118	-110.524	0.000%
14	0.583	-112.157	126.943	-0.583	112.157	-126.943	0.000%
15	0.583	-84.118	126.943	-0.583	84.118	-126.943	0.000%
16	-62.524	-112.157	109.443	62.524	112.157	-109.443	0.000%
17	-62.524	-84.118	109.443	62.524	84.118	-109.443	0.000%
18	-114.914	-112.157	66.499	114.914	112.157	-66.499	0.000%
19	-114.914	-84.118	66.499	114.914	84.118	-66.499	0.000%
20	-126.392	-112.157	-0.382	126.392	112.157	0.382	0.000%
21	-126.392	-84.118	-0.382	126.392	84.118	0.382	0.000%
22	-109.650	-112.157	-64.657	109.650	112.157	64.657	0.000%
23	-109.650	-84.118	-64.657	109.650	84.118	64.657	0.000%
24	-63.317	-112.157	-110.615	63.317	112.157	110.615	0.000%
25	-63.317	-84.118	-110.615	63.317	84.118	110.615	0.000%
26	0.000	-230.476	0.000	-0.000	230.476	0.000	0.000%
27	0.045	-230.476	-15.465	-0.045	230.476	15.465	0.000%
28	7.564	-230.476	-13.131	-7.564	230.476	13.131	0.000%
29	12.994	-230.476	-7.534	-12.994	230.476	7.534	0.000%
30	15.166	-230.476	0.020	-15.166	230.476	-0.020	0.000%
31	13.471	-230.476	7.677	-13.471	230.476	-7.677	0.000%
32	7.584	-230.476	13.129	-7.584	230.476	-13.129	0.000%
33	0.036	-230.476	14.987	-0.036	230.476	-14.987	0.000%
34	-7.505	-230.476	13.070	7.505	230.476	-13.070	0.000%
35	-13.309	-230.476	7.683	13.309	230.476	-7.683	0.000%
36	-15.118	-230.476	-0.031	15.118	230.476	0.031	0.000%
37	-12.982	-230.476	-7.581	12.982	230.476	7.581	0.000%
38	-7.556	-230.476	-13.142	7.556	230.476	13.142	0.000%
39	-0.156	-93.464	-20.932	0.156	93.464	20.932	0.000%
40	9.702	-93.464	-17.222	-9.702	93.464	17.222	0.000%
41	17.031	-93.464	-9.928	-17.031	93.464	9.928	0.000%
42	19.751	-93.464	0.191	-19.751	93.464	-0.191	0.000%
43	18.117	-93.464	10.569	-18.117	93.464	-10.569	0.000%
44	9.931	-93.464	17.269	-9.931	93.464	-17.269	0.000%
45	0.091	-93.464	19.835	-0.091	93.464	-19.835	0.000%
46	-9.769	-93.464	17.100	9.769	93.464	-17.100	0.000%
47	-17.955	-93.464	10.391	17.955	93.464	-10.391	0.000%
48	-19.749	-93.464	-0.060	19.749	93.464	0.060	0.000%
49	-17.133	-93.464	-10.103	17.133	93.464	10.103	0.000%
50	-9.893	-93.464	-17.284	9.893	93.464	17.284	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	170 - 160	1.423	43	0.071	0.036
T2	160 - 140	1.271	43	0.069	0.032
T3	140 - 120	0.986	43	0.062	0.021
T4	120 - 100	0.730	43	0.052	0.014
T5	100 - 80	0.513	43	0.043	0.009
T6	80 - 60	0.338	43	0.034	0.007
T7	60 - 40	0.203	43	0.025	0.005
T8	40 - 20	0.104	43	0.016	0.004
T9	20 - 0	0.037	43	0.008	0.002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.000	Lightning Rod 5/8" x 5'	43	1.423	0.071	0.036	364721
169.000	APXVSPP18-C-A20 w/ Mount Pipe	43	1.407	0.071	0.036	364721
165.000	TFC2K	43	1.346	0.070	0.034	364721
151.000	(2) P65.15.XL.0 w/ Mount Pipe	43	1.140	0.066	0.027	180754
145.000	AM-X-CD-16-65-00T-RET w/ Mount Pipe	43	1.055	0.064	0.024	172102
139.000	Pipe Mount [PM 602-1]	43	0.972	0.061	0.020	160116
138.000	PAR6-59A	43	0.959	0.061	0.020	157465
130.000	LNX-6514DS-A1M w/ Mount Pipe	43	0.854	0.057	0.017	136882
106.000	VHLPX4-11W-6WH	43	0.574	0.046	0.010	116463
104.000	ANT150F2	43	0.553	0.045	0.010	116527
96.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	43	0.475	0.041	0.009	116243
87.000	PR-950	43	0.394	0.037	0.008	115323
71.000	GPS-TMG-HR-26N	43	0.272	0.030	0.006	123529

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	170 - 160	9.057	10	0.445	0.230
T2	160 - 140	8.104	10	0.434	0.202
T3	140 - 120	6.298	10	0.392	0.134
T4	120 - 100	4.670	10	0.334	0.087
T5	100 - 80	3.285	11	0.277	0.059
T6	80 - 60	2.163	11	0.217	0.044
T7	60 - 40	1.299	11	0.157	0.033
T8	40 - 20	0.663	11	0.104	0.023
T9	20 - 0	0.236	10	0.052	0.014

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.000	Lightning Rod 5/8" x 5'	10	9.057	0.445	0.230	63195
169.000	APXVSPP18-C-A20 w/ Mount Pipe	10	8.961	0.444	0.227	63195
165.000	TFC2K	10	8.578	0.440	0.217	63195
151.000	(2) P65.15.XL.0 w/ Mount Pipe	10	7.272	0.418	0.172	29699
145.000	AM-X-CD-16-65-00T-RET w/ Mount Pipe	10	6.735	0.405	0.150	28555
139.000	Pipe Mount [PM 602-1]	10	6.212	0.389	0.131	26812
138.000	PAR6-59A	10	6.126	0.386	0.128	26308
130.000	LNX-6514DS-A1M w/ Mount Pipe	10	5.457	0.364	0.108	22276
106.000	VHLPX4-11W-6WH	10	3.673	0.294	0.066	18419
104.000	ANT150F2	10	3.541	0.288	0.064	18417
96.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	11	3.040	0.265	0.055	18325
87.000	PR-950	11	2.526	0.238	0.049	18130
71.000	GPS-TMG-HR-26N	11	1.744	0.189	0.039	19352

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	170	Leg	A325N	1.000	4	2.676	53.014	0.050 ✓	1	Bolt Tension
		Diagonal	A325X	0.625	1	9.579	15.186	0.631 ✓	1	Bolt Shear
		Top Girt	A325X	0.625	1	0.545	9.914	0.055 ✓	1	Member Block Shear
T2	160	Leg	A325N	1.250	4	11.984	82.835	0.145 ✓	1	Bolt Tension
		Diagonal	A325X	0.750	1	12.625	18.922	0.667 ✓	1	Gusset Bearing
T3	140	Leg	A325N	1.250	6	17.145	82.835	0.207 ✓	1	Bolt Tension
		Diagonal	A325X	1.000	1	16.206	20.227	0.801 ✓	1	Member Bearing
T4	120	Leg	A325N	1.375	6	27.634	100.230	0.276 ✓	1	Bolt Tension
		Diagonal	A325X	1.000	1	17.991	26.970	0.667 ✓	1	Member Bearing
T5	100	Leg	A325N	1.375	6	38.661	100.230	0.386 ✓	1	Bolt Tension
		Diagonal	A325X	1.125	1	23.947	26.100	0.918 ✓	1	Member Bearing
T6	80	Leg	A325N	1.500	6	50.939	119.282	0.427 ✓	1	Bolt Tension
		Diagonal	A325X	1.125	1	25.695	32.625	0.788 ✓	1	Member Bearing
T7	60	Leg	A325N	1.500	8	47.251	119.282	0.396 ✓	1	Bolt Tension
		Diagonal	A325X	1.250	1	27.295	31.538	0.865 ✓	1	Member Bearing
T8	40	Leg	A325N	1.500	8	56.090	119.282	0.470 ✓	1	Bolt Tension
		Diagonal	A325X	1.250	1	29.464	31.538	0.934 ✓	1	Member Bearing
T9	20	Diagonal	A325X	1.000	2	19.494	38.877	0.501 ✓	1	Bolt Shear
		Horizontal	A325X	1.000	2	14.331	26.916	0.532 ✓	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	170 - 160	Sabre 3.5" x 0.216"	10.017	5.008	51.7 K=1.00	2.228	-13.548	82.510	0.164 [1] ✓
T2	160 - 140	Sabre 4.5" x 0.438"	20.033	6.678	55.5 K=1.00	5.589	-56.481	200.839	0.281 [1] ✓
T3	140 - 120	Sabre 6.625" x 0.432"	20.033	6.678	36.5 K=1.00	8.405	-120.282	343.100	0.351 [1] ✓
T4	120 - 100	Sabre 8.625" x 0.5"	20.033	6.678	27.8 K=1.00	12.763	-193.719	542.674	0.357 [1] ✓
T5	100 - 80	Sabre 10.750" x 0.500"	20.033	10.017	33.1 K=1.00	16.101	-269.505	668.659	0.403 [1] ✓
T6	80 - 60	Sabre 12.75" x 0.5"	20.033	10.017	27.7 K=1.00	19.242	-353.734	818.560	0.432 [1] ✓
T7	60 - 40	Sabre 16" x 0.5"	20.033	10.017	21.9 K=1.00	24.347	-438.214	1057.800	0.414 [1] ✓
T8	40 - 20	Sabre 18" x 0.5"	20.033	10.017	19.4 K=1.00	27.489	-522.161	1203.360	0.434 [1] ✓
T9	20 - 0	Sabre 18" x 0.5"	20.033	5.008	9.7 K=1.00	27.489	-581.474	1228.500	0.473 [1] ✓

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	170 - 160	L2x2x3/8	10.079	4.870	150.2 K=1.00	1.360	-9.579	13.615	0.704 [1] ✓
T2	160 - 140	L3x3x3/8	12.580	6.120	125.1 K=1.00	2.110	-12.919	29.991	0.431 [1] ✓
T3	140 - 120	L3 1/2x3 1/2x3/8	14.315	6.867	120.0 K=1.00	2.480	-16.663	37.666	0.442 [1] ✓
T4	120 - 100	L3 1/2x3 1/2x1/2	16.112	7.678	134.9 K=1.00	3.250	-18.242	40.351	0.452 [1] ✓
T5	100 - 80	L5x5x1/2	19.296	9.234	114.5 K=1.02	4.750	-24.134	77.136	0.313 [1] ✓
T6	80 - 60	L5x5x5/8	21.032	10.014	122.9 K=1.00	5.860	-25.856	85.758	0.301 [1] ✓
T7	60 - 40	L5x5x5/8	22.811	10.744	131.8 K=1.00	5.860	-27.570	76.053	0.363 [1] ✓
T8	40 - 20	L5x5x5/8	24.624	11.567	141.9 K=1.00	5.860	-29.917	65.724	0.455 [1] ✓
T9	20 - 0	L5x5x5/8	16.010	14.467	117.1 K=1.03	5.860	-38.988	92.237	0.423 [1] ✓

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T9	20 - 0	2L3 1/2x3 1/2x1/4x3/8	24.000	10.958	120.5 K=1.00	3.380	-28.849	50.971	0.566 [1] ✓

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	170 - 160	L2 1/2x2 1/2x3/16	8.000	7.417	179.8 K=1.00	0.902	-0.609	6.303	0.097 [1] ✓

[1] $P_u / \phi P_n$ controls

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T9	20 - 0	L3x3x5/16	6.000	5.250	113.5 K=1.06	1.780	-10.093	29.278	0.345 [1] ✓

[1] $P_u / \phi P_n$ controls

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T9	20 - 0	L3x3x1/4	7.621	6.627	134.3 K=1.00	1.440	-6.410	18.026	0.356 [1] ✓

[1] $P_u / \phi P_n$ controls

Inner Bracing Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T9	20 - 0	L3x3x3/16	12.000	12.000	241.6 K=1.00	1.090	-0.036	4.218	0.008 [1] ✓

[1] $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	170 - 160	Sabre 3.5" x 0.216"	10.017	5.008	51.7	2.228	10.704	100.281	0.107 [1]
T2	160 - 140	Sabre 4.5" x 0.438"	20.033	6.678	55.5	5.589	47.934	251.522	0.191 [1]
T3	140 - 120	Sabre 6.625" x 0.432"	20.033	6.678	36.5	8.405	102.870	378.222	0.272 [1]
T4	120 - 100	Sabre 8.625" x 0.5"	20.033	6.678	27.8	12.763	165.801	574.322	0.289 [1]
T5	100 - 80	Sabre 10.750" x 0.500"	20.033	10.017	33.1	16.101	231.964	724.530	0.320 [1]
T6	80 - 60	Sabre 12.75" x 0.5"	20.033	10.017	27.7	19.242	305.634	865.902	0.353 [1]
T7	60 - 40	Sabre 16" x 0.5"	20.033	10.017	21.9	24.347	378.007	1095.630	0.345 [1]
T8	40 - 20	Sabre 18" x 0.5"	20.033	10.017	19.4	27.489	448.724	1237.000	0.363 [1]
T9	20 - 0	Sabre 18" x 0.5"	20.033	5.008	9.7	27.489	497.116	1237.000	0.402 [1]

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	170 - 160	L2x2x3/8	10.079	4.870	101.3	0.809	9.545	35.194	0.271 [1]
T2	160 - 140	L3x3x3/8	12.580	6.120	82.4	1.336	12.625	58.134	0.217 [1]
T3	140 - 120	L3 1/2x3 1/2x3/8	14.315	6.867	78.9	1.544	16.206	67.146	0.241 [1]
T4	120 - 100	L3 1/2x3 1/2x1/2	16.112	7.678	88.8	2.016	17.991	87.680	0.205 [1]
T5	100 - 80	L5x5x1/2	19.296	9.234	73.4	3.094	23.947	134.578	0.178 [1]
T6	80 - 60	L5x5x5/8	21.032	10.014	80.5	3.809	25.695	165.694	0.155 [1]
T7	60 - 40	L5x5x5/8	22.811	10.744	86.4	3.750	27.295	163.145	0.167 [1]
T8	40 - 20	L5x5x5/8	24.624	11.567	92.9	3.750	29.464	163.145	0.181 [1]
T9	20 - 0	L5x5x5/8	16.010	14.467	118.8	3.868	37.159	168.243	0.221 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T9	20 - 0	2L3 1/2x3 1/2x1/4x3/8	24.000	10.958	123.9	2.113	28.663	91.921	0.312 [1] ✓

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	170 - 160	L2 1/2x2 1/2x3/16	8.000	7.417	118.9	0.571	0.545	24.840	0.022 [1] ✓

[1] $P_u / \phi P_n$ controls

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T9	20 - 0	L3x3x5/16	5.750	5.000	65.1	1.780	10.176	57.672	0.176 [1] ✓

[1] $P_u / \phi P_n$ controls

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T9	20 - 0	L3x3x1/4	7.434	6.441	83.1	1.440	6.525	46.656	0.140 [1] ✓

[1] $P_u / \phi P_n$ controls

Inner Bracing Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T9	20 - 0	L3x3x3/16	12.000	12.000	153.4	1.090	0.016	35.316	0.000 [1] ✓

[1] $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	170 - 160	Leg	Sabre 3.5" x 0.216"	3	-13.548	82.510	16.4	Pass
T2	160 - 140	Leg	Sabre 4.5" x 0.438"	20	-56.481	200.839	28.1	Pass
T3	140 - 120	Leg	Sabre 6.625" x 0.432"	41	-120.282	343.100	35.1	Pass
T4	120 - 100	Leg	Sabre 8.625" x 0.5"	62	-193.719	542.674	35.7	Pass
T5	100 - 80	Leg	Sabre 10.750" x 0.500"	83	-269.505	668.659	40.3	Pass
T6	80 - 60	Leg	Sabre 12.75" x 0.5"	98	-353.734	818.560	43.2	Pass
T7	60 - 40	Leg	Sabre 16" x 0.5"	113	-438.214	1057.800	41.4	Pass
T8	40 - 20	Leg	Sabre 18" x 0.5"	128	-522.161	1203.360	43.4	Pass
							47.0 (b)	
T9	20 - 0	Leg	Sabre 18" x 0.5"	143	-581.474	1228.500	47.3	Pass
T1	170 - 160	Diagonal	L2x2x3/8	11	-9.579	13.615	70.4	Pass
T2	160 - 140	Diagonal	L3x3x3/8	23	-12.919	29.991	43.1	Pass
							66.7 (b)	
T3	140 - 120	Diagonal	L3 1/2x3 1/2x3/8	44	-16.663	37.666	44.2	Pass
							80.1 (b)	
T4	120 - 100	Diagonal	L3 1/2x3 1/2x1/2	64	-18.242	40.351	45.2	Pass
							66.7 (b)	
T5	100 - 80	Diagonal	L5x5x1/2	85	-24.134	77.136	31.3	Pass
							91.8 (b)	
T6	80 - 60	Diagonal	L5x5x5/8	100	-25.856	85.758	30.1	Pass
							78.8 (b)	
T7	60 - 40	Diagonal	L5x5x5/8	115	-27.570	76.053	36.3	Pass
							86.5 (b)	
T8	40 - 20	Diagonal	L5x5x5/8	131	-29.917	65.724	45.5	Pass
							93.4 (b)	
T9	20 - 0	Diagonal	L5x5x5/8	149	-38.988	92.237	42.3	Pass
							50.1 (b)	
T9	20 - 0	Horizontal	2L3 1/2x3 1/2x1/4x3/8	145	-28.849	50.971	56.6	Pass
T1	170 - 160	Top Girt	L2 1/2x2 1/2x3/16	6	-0.609	6.303	9.7	Pass
T9	20 - 0	Redund Horz 1 Bracing	L3x3x5/16	150	-10.093	29.278	34.5	Pass
T9	20 - 0	Redund Diag 1 Bracing	L3x3x1/4	155	-6.410	18.026	35.6	Pass
T9	20 - 0	Inner Bracing	L3x3x3/16	166	-0.036	4.218	0.8	Pass
							Summary	
						Leg (T9)	47.3	Pass
						Diagonal (T8)	93.4	Pass
						Horizontal (T9)	56.6	Pass
						Top Girt (T1)	9.7	Pass
						Redund Horz 1 Bracing (T9)	34.5	Pass
						Redund Diag 1 Bracing (T9)	35.6	Pass
						Inner Bracing (T9)	0.8	Pass
						Bolt Checks	93.4	Pass
						RATING =	**93.4**	**Pass**

APPENDIX B

BASE LEVEL DRAWING

(INSTALLED)
(1) EW52 TO 139 FT LEVEL

(INSTALLED)
(1) 7/8" TO 165 FT LEVEL

(INSTALLED)
(8) 3/8" TO 104 FT LEVEL
(10) 7/8" TO 104 FT LEVEL
(2) 1-1/4" TO 151 FT LEVEL
(1) 1/2" TO 170 FT LEVEL

LEG A

CLIMBING LADDER W/ SAFETY CLIMB

LEG B

CLIMBING PEGS W/ SAFETY CLIMB (TYP)

(INSTALLED)
(1) 3/8" TO 145 FT LEVEL
(2) 5/8" TO 145 FT LEVEL
(12) 1-5/8" TO 145 FT LEVEL

(RESERVED)
(5) 1-1/4" TO 96 FT LEVEL
(INSTALLED)
(6) 7/8" TO 96 FT LEVEL

(INSTALLED)
(1) 1/2" TO 87 FT LEVEL

(PROPOSED)
(2) 1-5/8" TO 130 FT LEVEL
(INSTALLED)
(18) 1-5/8" TO 130 FT LEVEL

(INSTALLED)
(1) 1/2" TO 71 FT LEVEL
(2) 1-1/4" TO 169 FT LEVEL

LEG C

BUSINESS UNIT: 841273 TOWER ID: C_BASELEVEL

CROWN REGION ADDRESS

USA

03/06/14	UPDATED PER WORK ORDER # 773279	ARR
06/05/14	UPDATED PER WORK ORDER # 796885	VJL
11/11/14	UPDATED PER WORK ORDER # 945794	LT
6/1/2015	UPDATED PER WORK ORDER 1001897	CJR
18/3/2015	UPDATED PER WORK ORDER 1029758	SLM
17/8/2015	UPDATED PER WORK ORDER 1102946	AMT
31/8/2015	UPDATED PER WORK ORDER 1106156	JHP
24/9/2015	UPDATED PER WORK ORDER 1109935	JHP
24/9/2015	UPDATED PER WORK ORDER 1126237	DD

DRAWN BY: MMM
CHECKED BY:
DRAWING DATE: 25/04/14

SITE NUMBER:
SITE NAME:

SITE NAME

TRURO

BUSINESS UNIT NUMBER

841273

SITE ADDRESS

344 ROUTE 6
NORTH TRURO, MA 02652
BARNSTABLE COUNTY
USA

SHEET TITLE

BASE LEVEL

SHEET NUMBER

A1-0

BASE LEVEL DRAWING

SCALE: N.T.S. | 1

PLOT DATE: 4/28/2015 - DRAWING: 841273_BASELEVEL.DWG

APPENDIX C

ADDITIONAL CALCULATIONS

Anchor Rod Check for Self Supporting Towers

TIA-222-G, Section 4.9.9

Rev. 6.1

CROWN CASTLE

Site Data	
BU#:	841273
Site Name:	TRURO
App #:	312788 Rev. 1

Anchor Rod Data		
Qty:	12	
Diam:	2	in
Rod Material:	A572 Gr. 50	
Strength (Fu):	65	ksi
Yield (Fy):	50	ksi

* Rod Circle:		in
* e:		in
* # of Rods		1 or 2

Mu= Pu x e:		ft-kips

** Only enter rod circle, offset (e) and number of anchor rods at the extreme fiber to consider if eccentric load due to leg reinforcement exist.*

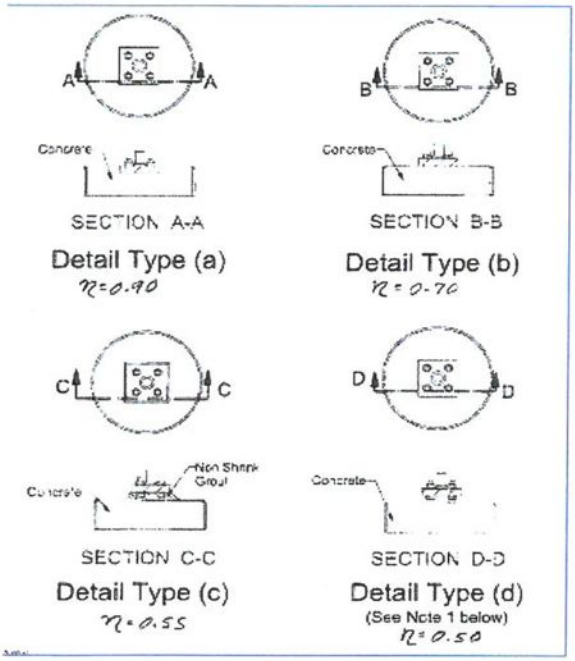


Figure 4-4 of TIA-222-G

Reactions		
Eta Factor, η	0.55	Detail Type
Uplift, Pu:	535	kips
Shear, Vu:	70	kips

l_{ar}:		in
$Mu = 0.65 * l_{ar} * V_u$		ft-kips

Anchor Rod Results:

Max Rod (Cu+ Vu/ή):	55.2	Kips
Design Axial, Φ*Fu*Anet:	130.0	Kips
Anchor Rod Stress Ratio:	42.5%	

If Applicable;

Anchor Rod Results with Bending Considered:

When the clear distance from the top of concrete to the bottom of level nut excceeds 1.0 times the diameter of the anchor rod, the following interaction equation shall also be satisfied (see Figure 4-4 of Rev. G):

$$(V_u/\phi R_{nv})^2 + [(P_u/\phi R_{nt}) + (M_u/\phi R_{nm})]^2 <= 1$$

$\phi R_{nv} = \phi * 0.45 * F_{ub} * A_b =$		kips
$\phi R_{nt} = \phi * F_u * A_{net} =$		kips
$\phi R_{nm} = \phi * F_y * Z =$		ft-kips

Maximum Acceptable Ratio: 105 %

Governing Stress Ratio: 42.5% **Pass**

CCI Foundation Tool Suite - SS Drilled Pier

CCIFTS 1.2.108.14286 - Phase 1-2 Date: 9/30/2015

BU:	841273
Site Name:	TRURO
App Number:	312788 rev.1
Work Order:	1126240

CROWN CASTLE

Self-Support Drilled Pier

Input

Criteria

TIA Revision:	G
ACI 318 Revision:	2005
Seismic Category:	B

Forces

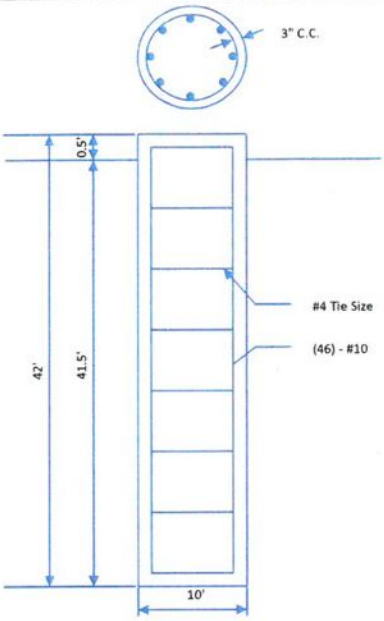
Compression	626 kips
Compression Shear	79 kips
Uplift	535 kips
Uplift Shear	70 kips
Add'l Moment	0 k-ft
Swelling Force	0 kips

Foundation Dimensions

Pier Diameter:	10 ft
Ext. above grade:	0.5 ft
Depth below grade:	41.5 ft
Bell Diameter:	ft
Bell Angle:	deg

Material Properties

Number of Rebar:	46
Rebar Size:	10
Tie Size	4
Rebar tensile strength:	60 ksi
Concrete Strength:	3000 psi
Ultimate Concrete Strain	0.003 in/in
Clear Cover to Ties:	3 in



Soil Profile soil

Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Skin Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	5	0	5	120					0	
2	15	5	20	120		32			0	
3	8.5	20	28.5	60		32			0	
4	2.5	28.5	31	60	2000				0	
5	10.5	31	41.5	60		33			12	

Analysis Results

Soil Lateral Capacity	Uplift case	Comp. case
Depth to Zero Shear:	20.2 ft	20.2 ft
Max Moment, Mu:	1027.9 k-ft	1160.0 k-ft
Soil Safety Factor:	32.2	28.5
Safety Factor Req'd:	1.33	1.33
RATING:	4.13%	4.66%

Soil Axial Capacity

Concrete Weight:	350.5 kips
Skin Friction:	659.4 kips
Soil Cone:	kips
Uplift Capacity (k), ϕTn:	1009.9 kips
Uplift (k), Tu:	535.0 kips
RATING:	52.97%

Skin Friction (k):	659.4 kips
End Bearing (k):	706.9 kips
Comp. Capacity (k), ϕCn:	1366.3 kips
Comp. (k), Cu:	626.0 kips
RATING:	45.82%

Concrete/Steel Check	Uplift Case	Comp case
Mu (from soil analysis)	1027.9 k-ft	1160.0 k-ft
ϕMn	11371.1 k-ft	15635.8 k-ft
RATING:	9.04%	7.42%

rho provided	0.52
rho required	0.33 OK
Rebar Spacing	6.4
Spacing required	20.3 OK
Dev. Length required	21.0
Dev. Length provided	55.6 OK

Overall Foundation Rating: 52.97%

Robinson+Cole

KATHERINE C. BAILEY

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kbailey@rc.com
Direct (617) 557-5955

Also admitted in Maine

Via Fed Ex and Electronic Mail

March 10, 2016

Carole Ridley
Town of Truro
Planning Department
P.O. Box 2030
Truro, MA 02666

Re: **Cellco Partnership d/b/a Verizon Wireless (the "Applicant")**
Application for Special Permit and Eligible Facilities Request for Collocation of Equipment on Tower Located at 344 Route 6, Truro (the "Tower")

Dear Ms. Ridley:

We are in receipt of your letter, dated March 4, 2016, requesting additional information for consideration with regard to the Applicant's pending applications before the Planning Board. The Applicant responds as follows:

1. You have requested information regarding the applicant's compliance with post-construction changes to Federal Communications Commission (FCC) and Federal Aviation Administration (FAA) regulations. The Applicant is not aware of any changes to FCC regulations which have caused any of its appurtenances located on the Tower to become non-compliant. Because the Applicant is proposing to install new antennas, we have provided a report confirming that the installation will not exceed the maximum permitted radio-frequency exposure levels adopted by the FCC, enclosed herewith.

   The location of the Applicant's appurtenances at 130' above ground level on a 170' tower (with the highest level of appurtenances located at 177' above ground level) does not implicate FAA regulations. Any changes required by a change in FAA regulations are an obligation of the Tower owner or the owner of the highest appurtenances.

2. You have requested information to demonstrate compliance with Condition #3 of the Planning Board decision for the Tower. This condition requires noise on the Tower to be

minimized by utilizing certain abatement measures. The Applicant is unable to control the noise abatement measures taken by other tenants located on the Tower or the owner of the Tower, Crown Castle. Any concerns that the Town has with regard to noise abatement measures regarding the Tower structure or other appurtenances should be raised directly with the respective party. The Applicant's proposed installation will utilize those noise abatement measures specified in Condition #3 of the Special Permit, as applicable to the work to be performed.

3. You have requested information demonstrating compliance with Condition #4, which required Sprint (the predecessor-in-interest to Crown Castle) to take sound level measurements before and after construction of the Tower and file the same with the Truro Planning Board and Department of Health. The Applicant respectfully submits that this is an issue for the Town to raise with Crown Castle, the owner of the Tower, and not an issue to be addressed through this application for an "eligible facilities request." FCC Order 14-153, which provides context for the adoption of the regulations in 47 C.F.R. § 1.40001, states that the relevant inquiry is whether the *change proposed* is a violation of a condition of approval for construction[1]: not whether the owner of the underlying structure is compliant with all conditions of its permit. The proposed installation will not affect compliance with this condition and should not be considered with regard to this application.

As you know, the Applicant has submitted this application as an "eligible facilities request" under Section 6409 of the Spectrum Act, which requires the local government to approve the application within sixty (60) days of the date the applicant submits its request.

Sincerely,

Katherine C. Bailey

Copy to: Michael S. Giaimo, Esq. (via email)
Tim Yee (via email)

Enclosure

[1] Federal Communications Commission, Report and Order, 14-153, Adopted October 17, 2014.

DONALD L. HAES, JR., PH.D., CHP

Radiation Safety Specialist

MA Radiation Control Program Health Physics Services Provider Registration #65-0017

PO Box 368, Hudson, NH 03051 603-303-9959 Email: donald_haes_chp@myfairpoint.net

March 9, 2016

RE: Installation/Replacement of radio base station antennas and associated equipment for the Verizon Wireless Personal Wireless Services facility located on the lattice tower at 344 Route 6, Truro, MA.

PURPOSE

I have reviewed the information pertinent to the proposed installation at the above location. To comply with the "Guidelines for DRI Review of Wireless Communications Towers",[i] theoretical calculations of maximal radio-frequency (RF) fields have been prepared. The physical conditions are that Verizon Wireless proposes to "swap-out" their personal wireless services (PWS) directional panel antennas (installed in three "arrays" aimed 120° apart) on the lattice tower at a centerline of 130' above ground level (AGL). The proposed installation will increase their antenna number from 9 to 12 (one more panel per array), and allow Verizon Wireless to continue deployment of their voice, data, Long Term Evolution (LTE aka "4G") and Advanced Wireless Services (AWS) systems. The lattice tower accommodates existing PWS installations by other PWS providers and municipal antennas.

This report considers the contributions of the proposed and existing PWS and municipal transmitters operating at their FCC-licensed capacity. The calculated values of RF fields are presented as a percent of current Maximum Permissible Exposures (%MPE) as adopted by the Federal Communications Commission (FCC),[ii,iii] and those established by the Massachusetts Department of Public Health (MDPH).[iv]

SUMMARY

Theoretical RF field calculations indicate the summation of the existing RF contributions and proposed Verizon Wireless RF contributions would be well-within the established RF exposure guidelines; see Figure 4. These calculations demonstrate there would be little change when compared to the existing conditions; see Figure 3. These results mean there could be even more similar installations at this location, and still be within all guidelines for RF exposure.

Based on the theoretical RF fields I have calculated, it is my expert opinion that this facility would comply with all regulatory guidelines for RF exposure to members of the public with the proposed addition of Verizon Wireless PWS antennas. The antenna installation proposed by Verizon Wireless would not produce a significant change to the ambient RF environment.

Note: The analyses, conclusions and professional opinions are based upon the precise parameters and conditions of this particular site; Lattice tower at 344 Route 6, Truro, MA. Utilization of these analyses, conclusions and professional opinions for any personal wireless services installation, existing or proposed, other than the aforementioned has not been sanctioned by the author, and therefore should not be accepted as evidence of regulatory compliance.

EXPOSURE LIMITS AND GUIDELINES

RF exposure guidelines enforced by the FCC were established by the American National Standards Institute (ANSI) [v] and the National Council on Radiation Protection and Measurement (NCRP).[vi] The RF exposure guidelines are listed for RF workers and members of the public. The applicable FCC RF exposure guidelines for the public are listed in Table 1, and depicted in Figure 1. All listed values are intended to be averaged over any contiguous 30 minute period.

Table 1: Maximum Permissible Exposure (MPE) Values in Public Areas

Frequency Bands	Maximum Permissible Exposure (MPE)		
	Electric Fields	Magnetic Fields	Equivalent Power Density
0.3 – 1.34 MHz	614 (V/m)	1.63 (A/m)	(100) mW/cm^2
1.34 - 30 MHz	824/*f* (V/m)	2.19/*f* (A/m)	(100) mW/cm^2
30 - 300 MHz	27.5 (V/m)	0.073 (A/m)	0.2 mW/cm^2
300 - 1500 MHz	--	--	*f*/1500 mW/cm^2
1500 - 100,000	--	--	1.0 mW/cm^2

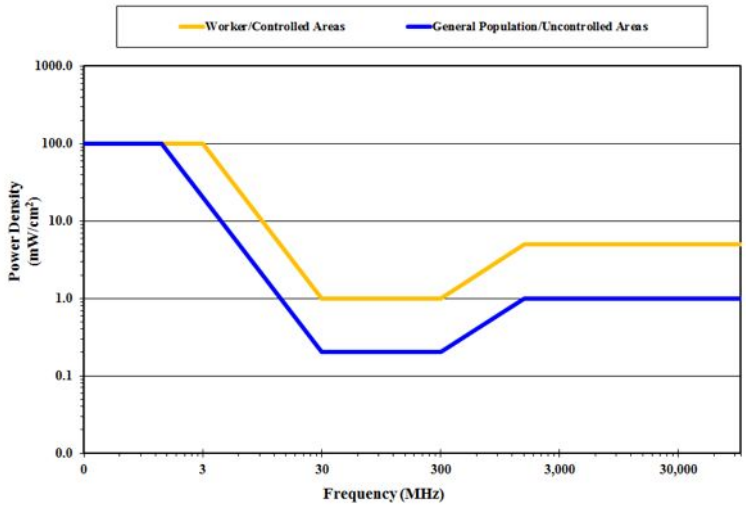


Figure 1: FCC Limits for Maximum Permissible Exposure (MPE)

NOTE: FCC 5% Rule – At multiple transmitter sites, actions necessary to bring the area into compliance with the RF exposure guidelines are the shared responsibility of all licensees whose transmitters produce RF field levels in excess of 5% of the applicable FCC MPEs.

Figure 2: Existing Lattice Tower (existing PWS antennas clearly visible); 344 Route 6, Truro, MA
(Picture courtesy Google Earth©2015 and may not represent current conditions)

OBSERVATIONS IN CONSIDERATION WITH FCC RULES §1.1307(B) & §1.1310

Will it be physically possible to stand next to or touch any omnidirectional antenna and/or stand in front of a directional antenna? **NO;** access to the lattice tower is restricted, and the site will adhere to established RF safety guidelines regarding the PWS antennas, including appropriate signage.

THEORETICAL RF FIELD CALCULATIONS - GROUND LEVELS

METHODOLOGY

These calculations are based on what are called "worst-case" estimates. That is, the estimates assume 100% use of all transmitters simultaneously. Additionally, the calculations make the assumption that the surrounding area is a flat plane. The resultant values are thus conservative in that they over predict actual resultant power densities.

The calculations are based on the following information for Verizon Wireless:

1. Effective Radiated Power (ERP): 3120 @ "850" MHz (CDMA); 4175 watts @ 1865-1870, 1945-1950 MHz (PCS LTE); 1254 watts @ 746-757, 776-787 MHz (LTE); 2500 watts @ 1710-1720, 2110-2120 MHz (AWS/LTE).
2. Antenna height (centerline, above ground level (AGL)): 130' AGL.
3. Antenna vertical radiation patterns; the source of the negative gain (G) values. "Directional" antennas are designed to focus the RF signal, resulting in "patterns" of signal loss and gain. These patterns (attached **APPENDIX A**) display the loss of signal strength relative to the direction of propagation due to elevation angle changes. The gain is expressed as "G^E".

Note: G is a unitless factor usually expressed in decibels (dB); where $G = 10^{(dB/10)}$.

For example: for an antenna *gain* of 3 dB, the net factor (G) = $10^{(3/10)} = 2$.

For an antenna *loss* of -3 dB, the net factor (G) = $10^{(-3/10)} = 0.5$.

To determine the magnitude of the RF field, the power density (S) from an isotropic RF source is calculated, making use of the power density formula as outlined in FCC's OET Bulletin 65, Edition 97-01: [vii]

$$S = \frac{P \cdot G}{4 \cdot \pi \cdot R^2}$$

Where:
- $P \rightarrow$ Power to antenna (watts)
- $G \rightarrow$ Gain of antenna
- $R \rightarrow$ Distance (range) from antenna source to point of intersection with the ground (feet)
  $R^2 = (\text{Height})^2 + (\text{Horizontal distance})^2$

Since: $P \cdot G = EIRP$ (Effective Isotropic Radiated Power) for broadcast antennas, the equation can be presented in the following form:

$$S = \frac{EIRP}{4 \cdot \pi \cdot R^2}$$

In the situation of off-axis power density calculations, apply the negative elevation gain (G^E) value from the vertical radiation patterns with the following formula:

$$S = \frac{EIRP \cdot G^E}{4 \cdot \pi \cdot R^2}$$

Ground reflections may add in-phase with the direct wave, and essentially double the electric field intensity. Because power density is proportional to the *square* of the electric field, the power density may quadruple, that is, increase by a factor of four (4). Since ERP is routinely used, it is necessary to convert ERP into EIRP; this is readily done by multiplying the ERP by the factor of 1.64, which is the gain of a half-wave dipole relative to an isotropic radiator. Therefore, downrange power density estimates can be calculated by using the formula:

$$S = \frac{4 \cdot (ERP \cdot 1.64) \cdot G^E}{4 \cdot \pi \cdot R^2} = \frac{ERP \cdot 1.64 \cdot G^E}{\pi \cdot R^2} = \frac{0.522 \cdot ERP \cdot G^E}{R^2}$$

To calculate the % MPE, use the formula:

$$\%\ MPE = \frac{S}{MPE} \cdot 100$$

The results of the percent Maximum Permissible Exposure (% MPE) calculations for the potential RF emissions resulting from the existing RF transmissions are depicted in Figure 3 as plotted against linear distance from the base of the lattice tower. The results of the % MPE calculations for the summation of the potential RF emissions resulting from the **summation** of the proposed Verizon Wireless and existing RF emissions are similarly depicted in Figure 4.

The values have been calculated for a height of six feet above ground level in accordance with regulatory rationale. In addition to the six foot height and depicted on the graphs for reference only, values have been plotted for a height of 16 feet above ground level for comparison with a typical two-story structure. A logarithmic scale was used to plot the calculated theoretical %MPE values in order to compare with the MPE of 100%, which is so much larger that it would be off the page in a linear plot. The curves in the figures resemble a straight-line on the log-linear plots at distances beyond two thousand feet. Within that distance, the curves are variable due to the application of the vertical radiation patterns.

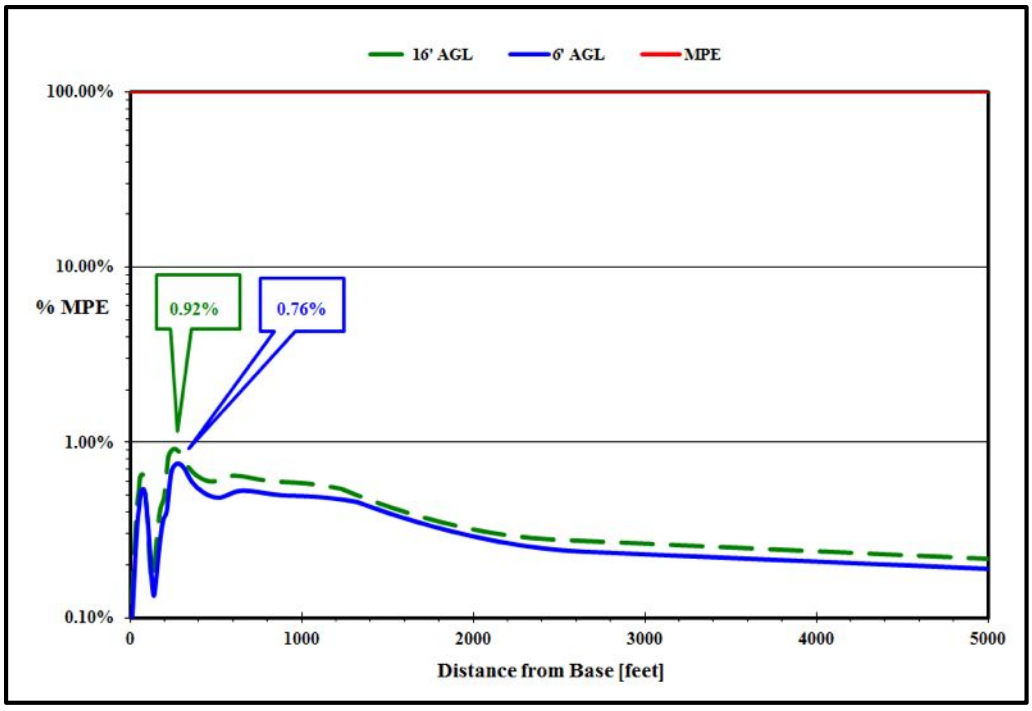


Figure 3: Theoretical Cumulative Maximum Percent MPE - vs. – Distance (*Existing* RF Contributions)

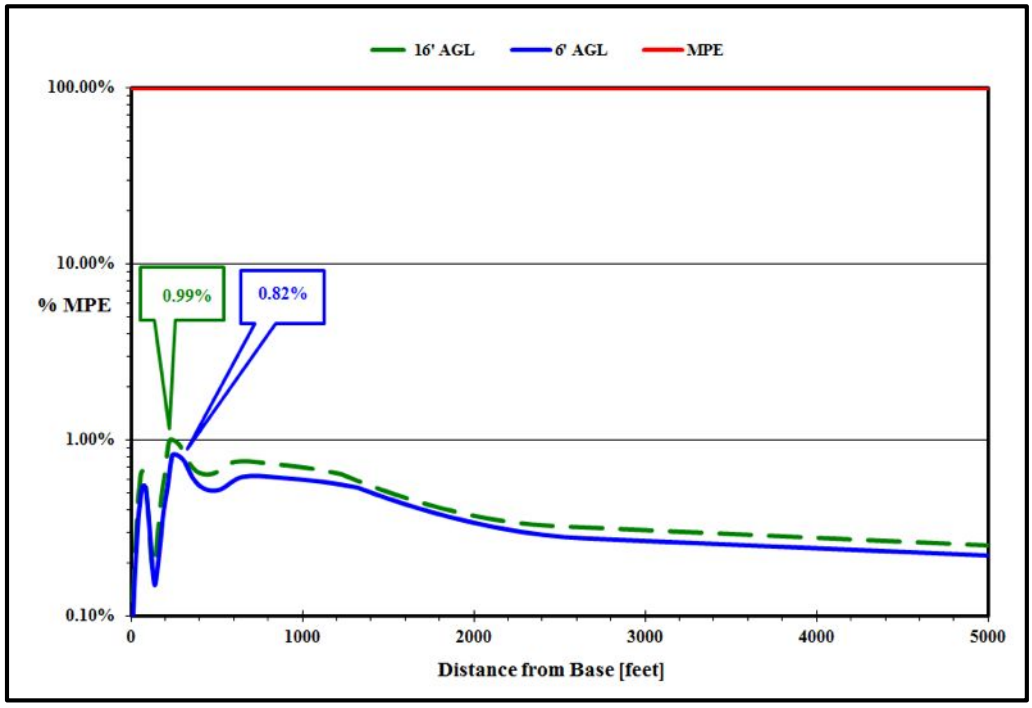


Figure 4: Theoretical Cumulative Maximum Percent MPE - vs. – Distance (*Proposed Verizon Wireless* and Existing RF Contributions)

CONCLUSION

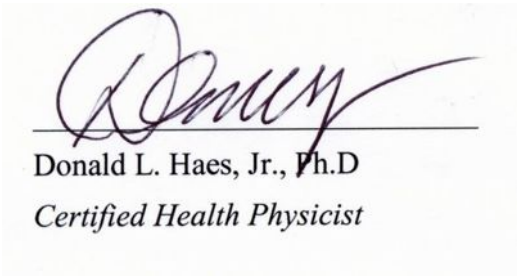
Theoretical RF field calculations indicate the summation of the existing RF contributions and proposed Verizon Wireless RF contributions would be well-within the established RF exposure guidelines; see Figure 4. These calculations demonstrate there would be little change when compared to the existing conditions; see Figure 3. These results mean there could be even more similar installations at this location, and still be within all guidelines for RF exposure.

The number and duration of calls passing through PWS facilities cannot be accurately predicted. Thus, in order to estimate the highest RF fields possible from operation of these installations, the maximal amount of usage was considered. Even in this so-called "worst-case," the resultant increase in RF field levels are far below established levels considered safe.

Based on the theoretical RF fields I have calculated, it is my expert opinion that this facility would comply with all regulatory guidelines for RF exposure to members of the public with the proposed addition of Verizon Wireless PWS antennas. The antenna installation proposed by Verizon Wireless would not produce a significant change to the ambient RF environment.

Feel free to contact me if you have any questions.

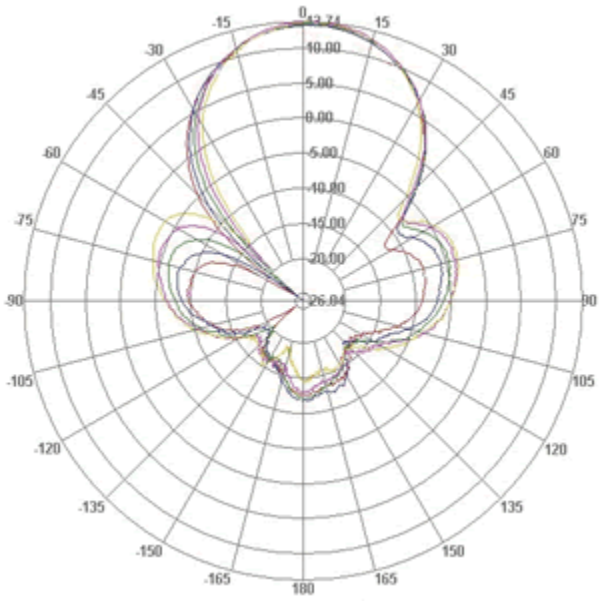
Sincerely,



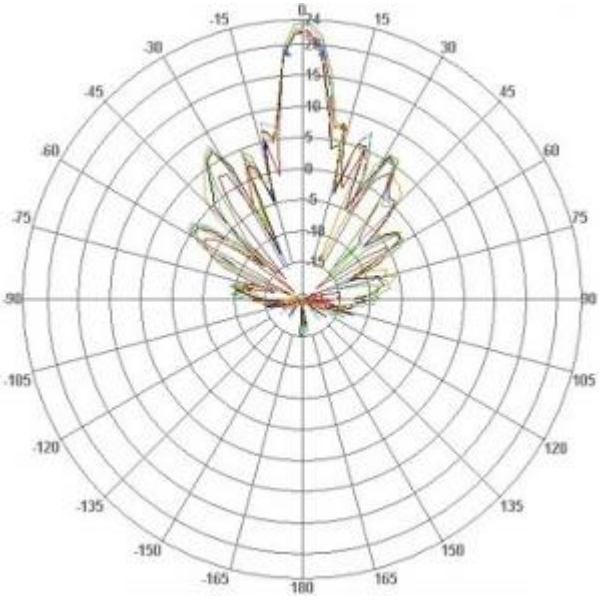
Donald L. Haes, Jr., Ph.D
Certified Health Physicist

Note: The analyses, conclusions and professional opinions are based upon the precise parameters and conditions of this particular site; Lattice tower at 344 Route 6, Truro, MA. Utilization of these analyses, conclusions and professional opinions for any personal wireless services installation, existing or proposed, other than the aforementioned has not been sanctioned by the author, and therefore should not be accepted as evidence of regulatory compliance.

APPENDIX A



Horizontal plane radiation pattern



Vertical plane radiation pattern

DONALD L. HAES, JR., PH.D., CHP

Radiation Safety Specialist

MA Radiation Control Program Health Physics Services Provider Registration #65-0017

PO Box 368, Hudson, NH 03051 603-303-9959 Email: donald_haes_chp@myfairpoint.net

STATEMENT OF CERTIFICATION

1. I certify to the best of my knowledge and beliefs, the statements of fact contained in this report are true and correct.

2. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are personal, unbiased professional analyses, opinions and conclusions.

3. I have no present or prospective interest in the property that is the subject of this report and I have no personal interest or bias with respect to the parties involved.

4. My compensation is not contingent upon the reporting of a predetermined energy level or direction in energy level that favors the cause of the client, the amount of energy level estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.

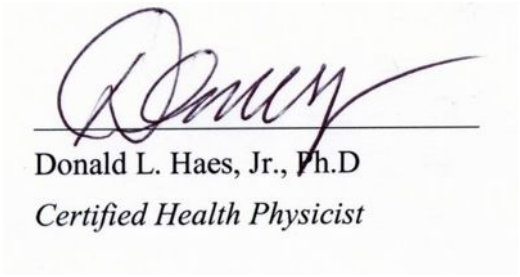
5. This assignment was not based on a requested minimum environmental energy level or specific power density.

6. My compensation is not contingent on an action or event resulting from the analyses, opinions, or conclusions in, or the use of, this report.

7. The consultant has accepted this assessment assignment having the knowledge and experience necessary to complete the assignment competently.

8. My analyses, opinions, and conclusions were developed and this report has been prepared, in conformity with the *American Board of Health Physics* (ABHP) statements of standards of professional responsibility for Certified Health Physicists.

Date: March 9, 2016



Donald L. Haes, Jr., Ph.D

Certified Health Physicist

ENDNOTES

[i]. Cape Cod Commission, *Guidelines for DRI Review of Wireless Communications Towers*, Technical Bulletin 97-001, Section IX (A) Monitoring and Maintenance, Adopted 10/9/97, Revised 3/4/99.

[ii]. Federal Register, Federal Communications Commission Rules; *Radiofrequency radiation; environmental effects evaluation guidelines* Volume 1, No. 153, 41006-41199, August 7, 1996. (47 CFR Part 1; Federal Communications Commission).

[iii]. Telecommunications Act of 1996, 47 USC; Second Session of the 104th Congress of the United States of America, January 3, 1996.

[iv]. 105 CMR 122.000: Massachusetts Department of Public Health, *Non-Ionizing Radiation Limits for: The General Public from Non-Occupational Exposure to Electromagnetic Fields, Employees from Occupational Exposure to Electromagnetic Fields, and Exposure from Microwave Ovens*.

[v]. ANSI/IEEE C95.1-1999: American National Standard, *Safety levels with respect to human exposure to radio frequency electromagnetic fields, from 3 KHz to 300 GHz* **(Updated in 2010)**.

[vi]. National Council on Radiation Protection and Measurements (NCRP); *Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields*, NCRP Report 86, 1986.

[vii]. OET Bulletin 65: Federal Communications Commission Office of Engineering and Technology, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*; Edition 97-01, August 1999.

TOWN OF TRURO
P.O. Box 2030, Truro, MA 02666
Tel: (508) 349-7004 Fax: (508) 349-5505

To: Planning Board
From: Carole Ridley, Consultant
Date: February 19, 2016, Updated March 8, 2016
Re: Waiver from Site Plan Review

2016-002SPR Dorchester Awning c/o Thomas Cebula seeks a waiver of Site Plan Review pursuant to §70.9 of the Truro Zoning Bylaw for installation of a seasonal canopy covering a portion of a patio at Captain's Choice Restaurant, 4 Highland Road, Map 36, Parcel 93-D.

The applicant is required to install a cover over an outdoor servicing area per FDA regulation. According to the Health Department, the property has a seating capacity of 16 interior seats and 24 outdoor seats. No new seats are proposed.

This matter was continued from February 25th to allow for a site visit by the Planning Board. The site visit took place on Monday, March 7th at 2 pm.

Completion of Submission

1. Commercial Development Application for Site Plan Review received January 29, 2016.
2. Correspondence from Dorchester Awning dated January 26, 2016
3. Accompanying photographs and photo representation of the proposed awning
4. Site Plan for 4 Highland Road, Map 36, Parcel 93-D 8, stamped by surveyor dated 12/31/2015, at 1"=10'

Two additional pieces of information were requested per comments of Health Agent and were provided by the applicant:

1. A seating plan for the outdoor area has been provided. There will be no change in the number of seats proposed.
2. Plan showing location of outdoor refuse/recycling receptacle
3. Plan showing parking for unit D, Captain's Choice

Other Department Comments
Summary of Health/Conservation comments:

- No Wetland Issues
- Health Department issues itemized in attached letter – Note that coverage of outdoor servicing areas is a requirement of FDA 6-202.18: *Except for areas used only for the loading of water or the discharge of sewage and other liquid waste, through the use of a closed system of hoses, servicing areas shall be provided with overhead protection.*

Application materials also were distributed to the Police Department, Fire Department, DPW and Building Commissioner and no comments/concerns raised.

Planning Board Jurisdiction
§70.9 Waiver of Site Plan Review
The Planning Board may determine at its discretion without a public hearing that submission of a Commercial or Residential Site Plan review application is not required when the alteration or reconstruction of an existing building or structure or new use or change in use **will not** have a significant impact: within the site or in relation to adjacent properties and streets; on pedestrian and vehicular traffic; on public services and infrastructure, or on unique environmental and historic resources abutting properties; or community needs.

A waiver from Commercial or Residential Site Plan Review must be requested by the applicant using the appropriate Site Plan Review Application form. The form, applicable filing fee and supporting documentation to establish such review shall be filed with the Planning Board Secretary. A waiver request will be considered at a regular session of the Planning Board.

Upon the decision of the Planning Board, a copy of the decision shall be sent to the applicant, the owner, the representative, if any, and the Building Commissioner.

Completeness of Application
As there are no specific requirements for the submittal of a Waiver of Site Plan Review, it is the responsibility of the Planning Board to determine whether the information submitted provides adequate information to determine whether the applicant has demonstrated that "the alteration or reconstruction of an existing building or structure or new use or change in use will not have a significant impact: within the site or in relation to adjacent properties and streets; on pedestrian and vehicular traffic; on public services and infrastructure, or on unique environmental and historic resources abutting properties; or community needs."

Additional Planning Staff Comments
Mr. Riemer requested to learn if there was a previous site plan approval of the site. No documentation related to site plan review or approval was found, likely because

construction on the site pre-dated site plan review. Building permits and plans found in the files are enclosed for informational purposes.

The applicant has subsequentlynot identified any measures that will be undertaken to control littering or handle refuse/recycling.

The applicant had indicated that the canopy would be installed from April through October. The frame would remain in place all year round.

Board Options

1. Approve the request of **Dorchester Awning c/o Thomas Cebula** for a Waiver of Site Plan Review pursuant to §70.9 of the Truro Zoning Bylaw for installation of a seasonal canopy covering a portion of a patio at Captain's Choice Restaurant, 4 Highland Road, Map 36, Parcel 93-D. This is based on the fact that the seasonal canopy in this location **will not** have a significant impact: within the site or in relation to adjacent properties and streets; on pedestrian and vehicular traffic; on public services and infrastructure, or on unique environmental and historic resources abutting properties; or community needs. *(NOTE: Include a condition (s) if applicable.)*

2. Deny the request of **Dorchester Awning c/o Thomas Cebula** for a Waiver of Site Plan Review pursuant to §70.9 of the Truro Zoning Bylaw for installation of a seasonal canopy covering a portion of a patio at Captain's Choice Restaurant, 4 Highland Road, Map 36, Parcel 93-D. This is based on the fact that the seasonal canopy in this location **will** have a significant impact: within the site or in relation to adjacent properties and streets; on pedestrian and vehicular traffic; on public services and infrastructure, or on unique environmental and historic resources abutting properties; or community needs.

3. To continue the meeting on the application for additional information *(Need to state what additional information is required and the continuation of a meeting must be to a date and time certain.)*

Town of Truro Planning Board

P.O. Box 2030, Truro, MA 02666

COMMERCIAL DEVELOPMENT
APPLICATION FOR SITE PLAN REVIEW

Office of Town Clerk
Treasurer – Tax Collector
$125.00 Fee PAID
JAN 20 2016
2016-002/SPR
Received TOWN OF TRURO
By Molly Stevens

Date 1/22/16

To the Town Clerk and the Planning Board of the Town of Truro, MA

The undersigned hereby files an application with the Truro Planning Board for the following:

☐ ***Site Plan Review*** pursuant to §70.3 of the Truro Zoning By-law (Complete I, II & III)

☒ ***Waiver of Site Plan Review*** pursuant to §70.9 of the Truro Zoning By-law (Complete I & III)

I. General Information

Description of Property and Proposed Project EXISTING RESTAURANT WITH OUTDOOR DINING PATIO, TO HAVE A SEASONAL CANOPY COVERING PORTION OF PATIO AS INDICATED ON INCLUDED SITE PLAN

Property Address 4 HIGHLAND ROAD Map(s) and Parcel(s) 36-93-D

Registry of Deeds title reference: Book _____, Page _____, or Certificate of Title Number _____ and Land Ct. Lot # _____ and Plan # _____

Applicant's Name DORCHESTER AWNING COMPANY / THOMAS CIEBULA

Applicant's Legal Mailing Address 9 GALLEN ROAD, KINGSTON MA 02364

Applicant's Phone(s), Fax and Email 7818269001 / 7818261628 / TOM@DORCHESTERAWNING.COM

Applicant is one of the following: *(please check appropriate box)*

☐ Owner ☐ Prospective Buyer* ☒ Other* *Written Permission of the owner is required for submittal of this application.

Owner's Name and Address KING WHITE REALTY, 4 HIGHLAND ROAD, TRURO

Representative's Name and Address CHRIS KING & JOHN WHITE

Representative's Phone(s), Fax and Email 5065094180 / 5082371512 / C-KING@COMCAST.NET

II. Waiver(s) Request – Waivers from any of the items listed in §70.3.D, must be identified below and a separate sheet shall be attached indicating in detail the reason for said waiver(s) pursuant to §70.3.D. *Note that items 1(a-d), 2 and 3.a (1 – 6) of §70.3.D shall not be waived.*

☐ 1.e: 3 copies of drainage calculations

☐ 3.b: Existing Conditions Plan (specific waiver requests and reason must be attached)

☐ 3.c: Proposed Conditions Plan (specific waiver requests and reason must be attached)

☐ 3.d: Proposed Landscaping Plan (specific waiver requests and reason must be attached)

III. Signature(s)

Applicant(s)/Representative Signature

Owner(s) Signature or written permission

Your signature on this application authorizes the Members of the Planning Board and town staff to visit and enter upon the subject property.

The DORCHESTER
Awning Company

Awnings of Distinction
Since 1901

9 Gallen Road
Kingston, MA 02364
Office: 781-826-9001
Toll Free: 800-649-8686
Fax: 781-826-1628

January 26, 2016

Planning Board Members
Town of Truro
24 Town Hall Road
Truro, MA 02666

Members of the Board,

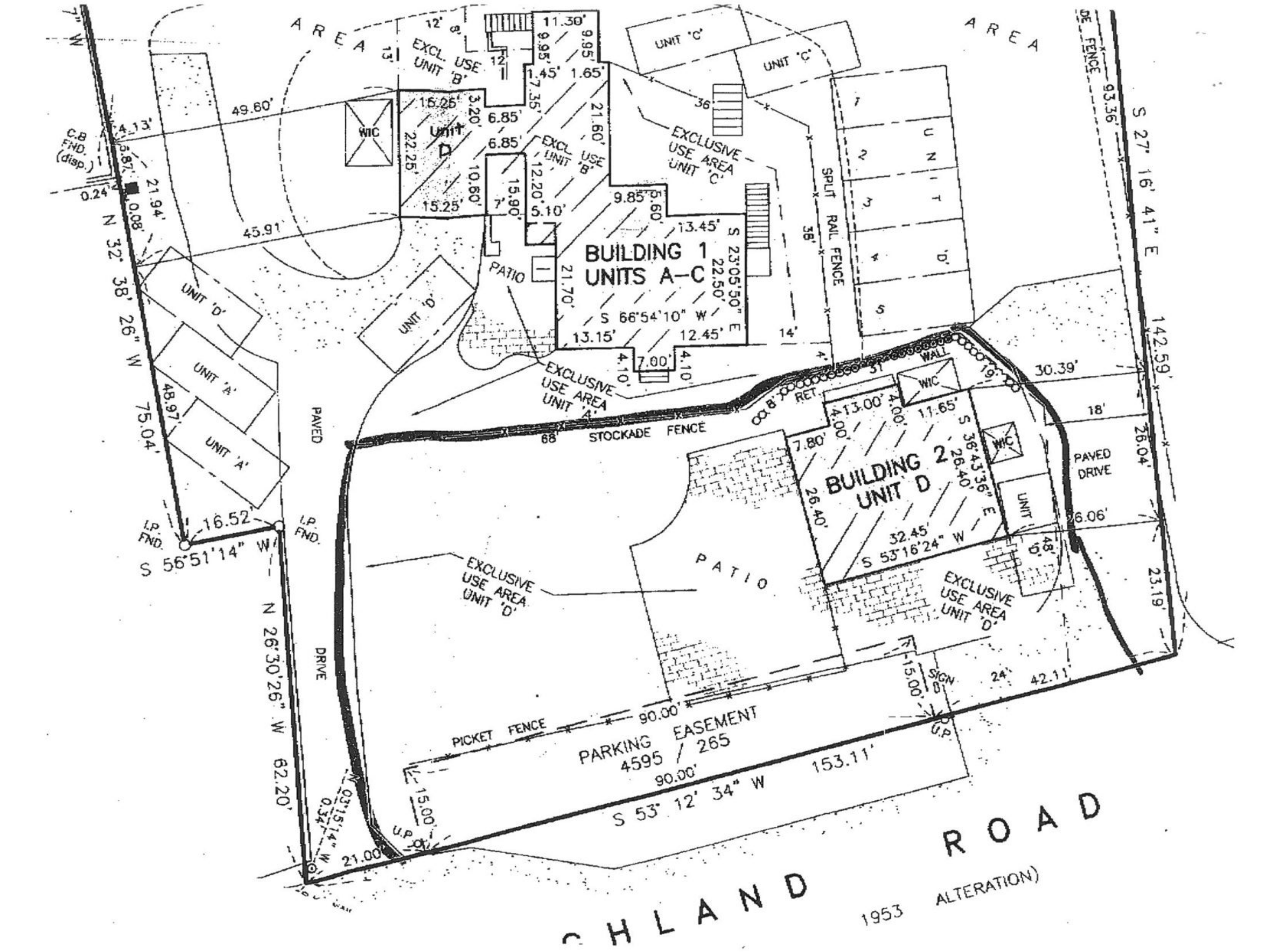
Please review the attached information for a Request of Waiver of Site Plan Review for the Captains Choice Restaurant at 4 Highland Road. The existing brick paver patio is currently used for a dining area during the operating season for the restaurant. The owners have contracted with us to provide a seasonal fixed frame, fabric covered canopy structure as shown on the attached Site Plan & Rendering.

We believe the Waiver of Site Plan Review is appropriate for this application, as per Section 70.9 of the Town Ordinance, none of the following apply:

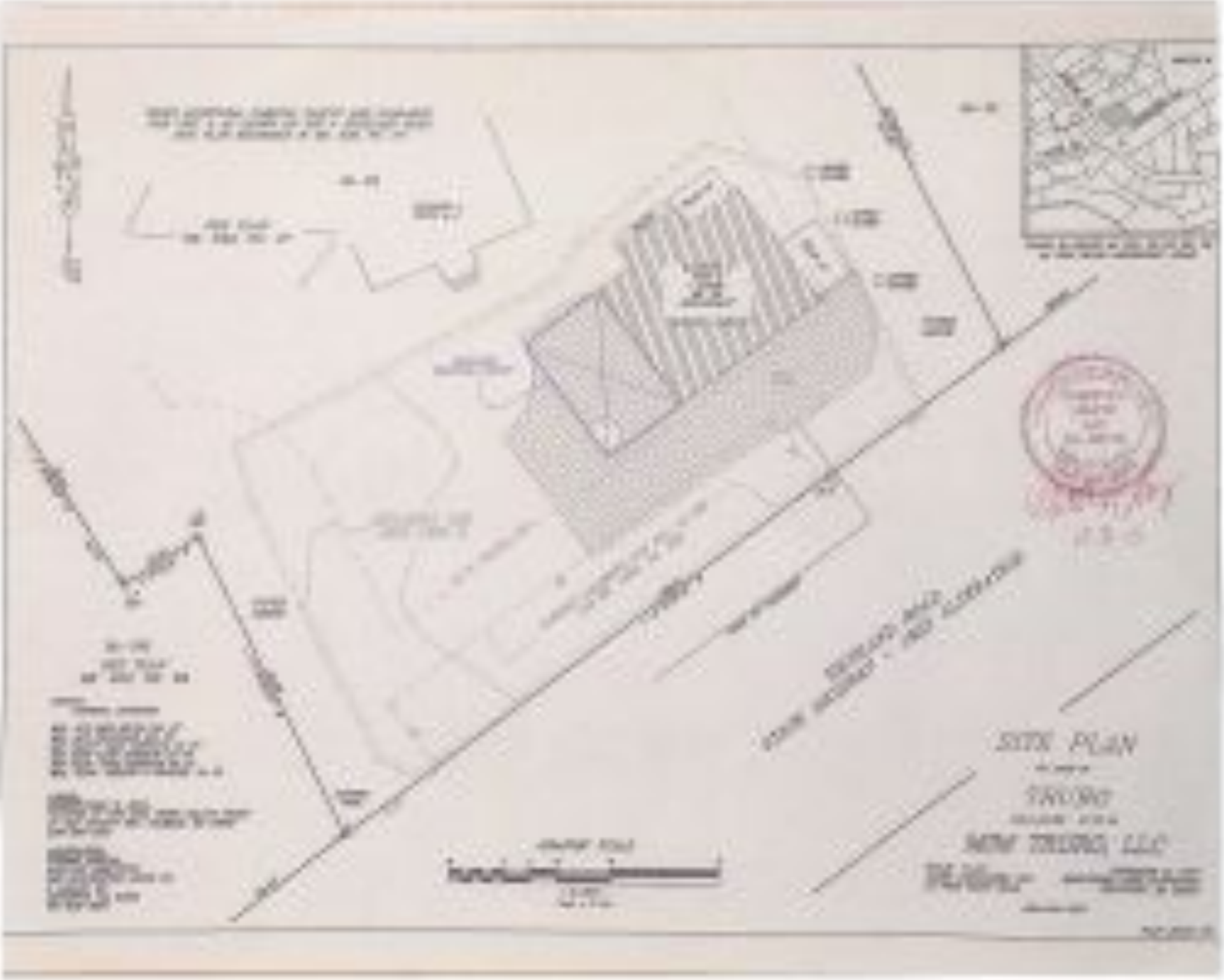
- No change in use of the property
- No significant effect on adjacent properties or streets
- No impact on pedestrian or vehicular access
- No effect on public services, unique environmental and historic resources, or on community needs

Thank you,

Thomas Cebula
Account Executive
The Dorchester Awning Company



BUILDING 1
UNITS A–C
S 23°05'50" E
22.50'
13.45'
12.45'
S 66°54'10" W
13.15'
21.70'
4.10'
7.00'
4.10'
9.85'
5.60'
BUILDING 2
UNIT D
S 36°43'36" E
26.40'
11.65'
32.45'
S 53°16'24" W
26.40'
7.80'
4.00'
13.00'
4.00'
EXCLUSIVE USE AREA UNIT 'C'
EXCLUSIVE USE AREA UNIT 'A'
EXCLUSIVE USE AREA UNIT 'D'
EXCLUSIVE USE AREA UNIT 'D'
EXCL. USE UNIT 'B'
EXCL. UNIT USE 'B'
Unit D
15.25'
3.20'
22.25'
10.60'
15.25'
6.85'
6.85'
12.20'
5.10'
15.90'
7'
11.30'
9.95'
9.95'
1.45'
1.65'
7.35'
21.60'
12'
12'
8'
13'
WIC
WIC
WIC
UNIT 'C'
UNIT 'C'
UNIT 'D'
UNIT 'D'
UNIT 'A'
UNIT 'A'
UNIT
48'
'D'
UNIT 'D'
1
2
3
4
5
AREA
AREA
36'
SPLIT RAIL FENCE
38'
14'
4'
31'
WALL
RET.
19'
30.39'
18'
PAVED DRIVE
26.04'
26.06'
23.19'
42.11'
24'
SIGN
15.00'
U.P.
PATIO
PATIO
68'
STOCKADE FENCE
PICKET FENCE
90.00'
PARKING EASEMENT
4595 / 265
90.00'
153.11'
S 53° 12' 34" W
15.00'
U.P.
21.00'
N 03°15'14" W
0.34'
PAVED
DRIVE
N 26°30'26" W
62.20'
I.P. FND.
I.P. FND.
16.52'
S 56°51'14" W
75.04'
48.97'
N 32° 38' 26" W
21.94'
0.08'
0.24'
5.87'
4.13'
C.B FND. (disp.)
49.60'
45.91'
7" W
S 27° 16' 41" E
142.59'
93.36'
DE FENCE
CHLAND ROAD
1953 ALTERATION)


SITE PLAN
TAVERN
NEW TAVERN, LLC

Health/Conservation Agent
Town of Truro
Phone: (508) 349-7004 ext. 32
Fax: (508) 349-5850

MEMO

To: Carole Ridley, Planning Consultant for the Town of Truro
From: Patricia Pajaron
CC:
Date: February 17, 2016
Re: **Development Application Referral, Dorchester Awning, 4 Highland Road, Map 36 Parcel 93**

I have reviewed the Application for Waiver of Site Plan Review submitted by Thomas Cebula of Dorchester Awning Company to install a seasonal canopy covering a portion of the outdoor patio area. The following outlines my questions and comments relative to the submittal:

1. **CONSERVATION**

According to the OLIVER GIS maps available online at the MassDEP website, there appear to be no Wetland Resource Areas subject to protection under the Massachusetts Wetlands Protection Act (310 CMR 10.00) affecting the property; therefore Conservation Commission review and approval are not required at this time.

HEALTH

1. This property consists of a food service establishment with a seating capacity of 16 interior seats and 24 outside seats.
2. Are additional outside seats being proposed?
3. A seating plan should be included with this application.
4. Per Truro BOH Regulations Section X, Article 5(2), all outdoor dining areas shall contain a refuse and recycle container.
5. The canopy provides overhead protection as required by the *Food Code;* ***6-202.18 Outdoor Servicing Areas, Overhead Protection.***

TOWN OF TRURO

Planning Department
P.O. Box 2030, Truro, MA 02666
Tel: (508) 349-7004, Ext. 27 Fax: (508) 349-5505
cridley@truro-ma.gov

To: Planning Board
From: Carole Ridley
Date: March 10, 2016
Re: Staff Report

2016-003PB Steven F. Rogers seeks approval of a 9-lot preliminary subdivision pursuant to MGL c 41 Section 81-S and Section 2.4 of the Town of Truro Rules and Regulations Governing the Subdivision of Land for property located at 25 & 25A Pond Road, Assessor's Map 36, Parcels 39 & 35.

Description
The proposed site consists of 10.18 acres located in North Truro, of which 9.27 acres is used to create nine house lots and the balance for a 990-ft roadway that intersects with Pond Road. Existing structures on proposed Lot 1 are to be demolished.

Completeness of Application
The following application materials were submitted:

- Executed Form B, Application for Approval of a Preliminary Plan, and $275 fee, received by the Town Clerk on January 23, 2016
- Preliminary Plan of Land in Truro for Steven F. Rogers, revised 1/25/16, by Slade Associates, Inc., at 1"=50', meeting requirements for preliminary plan pursuant to section 2.4.2.c.
- Letter from Thomas W. French, Massachusetts Natural Heritage and Endangered Species Program, dated March 27, 2015, re: 25 & 25A Pond Road, 9-lot Preliminary Subdivision, MNHESP file #15-34228
- A certified list of abutters to 25 and 25A Pond Road

Staff Comments
Health (See attached memo):
- All proposed nine lots are subject to the Nitrogen Loading Limitations of 1 bedroom per 10,000 sf.
- Lot 1 appears to be serviced by a cesspool and will require an upgrade to conform to Title 5 prior to the subdivision per BOH Regulation Section VI Article 3(1)c.
- A small structure on the Lot line between Lot 9 and parcel 36-42 would need to be relocated

- The Master Well and Septic Plan and Definitive Subdivision Plan will need to be reviewed and approved by the BOH. Due to proximity to Pilgrim Pond, the BOH will most likely required a hydrogeological study unless a variance of this requirement is requested.

Conservation (See attached memo):

- There are no wetlands resources on the site. The buffer zone to Pilgrim Pond should be shown on the plan.
- The site is within NHESP estimated habitat. A letter from NHESP indicating that the proposed plan would not constitute a take of state-listed species is included with the application materials.

Building:
Police: No concerns
Fire: Returned with no concerns noted
DPW:

Additional Planning Staff Comments

A post card providing notice of the date and time of the Planning Board's review of the application was mailed to abutters on February 18, 2016. Comment letters sent to the Planning Board as of March 10, 2016 are included in your packet.

A review the preliminary plan's apparent conformance with applicable zoning and subdivision regulations with regard to road layout, access, and lot dimensions is provided below. Relevant natural resource protection is also addressed. This is a preliminary plan and further details could be developed in the formulation of a definitive plan proposal.

Roadway Layout – Zoning Compliance

The roadway appears to conform with zoning requirements for minimum width of street and width of turn around as measured from property lines. Curb radii may be met but are not labeled. (Table 1)

Table 1. Zoning Requirements w/o Relief From Zoning Board of Appeals

Required per Zoning Definition of Street	Proposed on Preliminary Plan (revised 1/23/16)
40' Minimum width of street ROW	40'
Property lines shall be rounded to provide a curb radii of not less than 20'	Not indicated
Turn around with property line diameter of 80'	81.25' appears to be provided based on 1"=50'

The road intersection appears to be just 150 feet from the nearest intersection on the same side of the roadway (Pond Village Avenue) as required under Section 3.6.2.

The road length of 990 feet is within the maximum 1,000 foot distance for a dead end road, and an 80 foot turn around measured from property lines is provided as required under Section 3.6.6.

The proposed subdivision road should be separated from subdivision boundaries by a 25-ft buffer and vegetation as required under section 3.6.7. This may be met but requires clarification.

This would be a Type B street serving 5-10 Lots. Type B streets require a minimum roadway width of 18-ft and a shoulder width of 4-ft, as provided. Grade and site distances also would need to be met at the definitive plan stage.

Adequacy of Access
The subdivision road intersects with Pond Road, a 33-ft town roadway.

Section 3.9 gives the Board discretion to disapprove a plan "…if it determines that access roads to the subdivision are inadequate to carry the volume of traffic reasonably anticipated. The applicant shall show to the satisfaction of the Board that the roads and ways to and from the proposed subdivision shall be adequate to provide emergency medical, fire and police protection as well as safe travel and adequate circulation for he projected volume of traffic...The Board may require appropriate and reasonable improvements in adjacent streets and ways to minimize congestion, to ensure safe and adequate access to the subdivision, and to ensure safe and adequate vehicular and pedestrian travel."

Building Lots – Zoning Compliance
The proposed lots appear to meet minimum dimensional requirements:

Area and Dimensional Requirements

Lot #	1	2	3	4	5	6	7	8	9
Min.Lot Size Req'd = 33,750sf	40,049	40,391	40,391	40,393	50,614	50,614	50,614	50,614	40,056
Min Frontage = 150'	370'	236'	166'	200'	151'	180'	150'	150'	463'
Lot Shape	yes	yes	yes	yes	yes	yes	yes	yes	yes

Natural Resources
The application materials include a letter from the Massachusetts Natural Heritage and Endangered Species Program indicating that the proposed subdivision would not result in a take of state-listed species.

Planning Board Jurisdiction

According to § 2.4 of the Rules and Regulations Governing the Subdivision of Land, the purpose of a preliminary plan is to "enable the subdivider, the Board, other municipal agencies and owners of abutting property to identify and discuss any problem areas in the proposed subdivision. Review of, and comments on, a Preliminary Plan are strictly advisory and do not commit the Board to approve a Definitive Plan.

§ 2.4.4 Action on Preliminary Plans states:

"Within 45 days after submission to the Board of a preliminary plan, it shall notify the applicant and the Town Clerk, by certified mail, either that the plan has been approved, or that the plan has been approved with modifications suggested by the board or agreed upon by the person submitting the plan, or that the plan has been disapproved, and in the case of disapproval, the board shall state its reasons therefore.

The approval of a Preliminary Plan does not entitle that plan to be recorded, but it may facilitate the approval of a Definitive Subdivision Plan."

The applicant has requested to extend the Board's statutory time period for action to April 13, 2016.

Planning Board Options
As noted above, the Board may vote to approve the plan, approve the plan with conditions, or disapprove of the plan, citing specific reasons for disapproval.

Possible Motion:

Move to approve/approve with conditions/deny **2016-003PB Steven F. Rogers** for a 9-lot preliminary subdivision pursuant to MGL c 41 Section 81-S and Section 2.4 of the Town of Truro Rules and Regulations Governing the Subdivision of Land for property located at 25 & 25A Pond Road, Assessor's Map 36, Parcels 39 & 35. If approval is conditional, cite conditions. If the motion is to deny, the Board must cite reasons for denial.

TOWN OF TRURO

PLANNING BOARD

Town Clerk
Treasurer – Tax Collector
$275.00 Fee Pd.
JAN 28 2016
2016-003/PB
Received TOWN OF TRURO
By Molly Stevens

Form B

APPLICATION FOR APPROVAL OF A PRELIMINARY PLAN

Date _____

To the Planning Board of the Town of Truro, MA

The undersigned, being the applicant as defined under Chapter 41, Section 81-L, for approval of a proposed subdivision shown on a plan entitled Preliminary Subdivision of Land in Truro Made For Steven F. Rogers

by Slade Associates, Inc. dated 01/25/16 and described as follows:

Located: 25 & 25A Pond Road

Assessor's Map(s) and Parcel(s): 36 – 39 & 35

Number of Lots Proposed: 9 Total acreage of Tract: 10.18 ac. +/-

Said applicant hereby submits said plan as a *Preliminary* subdivision plan in accordance with the Rules and Regulations of the Truro Planning Board and makes application to the Board for approval of said plan.

The undersigned's title to said land is derived under deed from Steven F. Rogers

dated Aug. 19, 2015, and recorded in the Barnstable Registry of Deeds Book and Page: 29110 - 261

or by Land Court Certificate of Title No. _____ registered in Barnstable County.

Applicant's Signature and owner Applicant's Telephone Number (317) 797-7339

Applicant's Legal Mailing Address _____

Owner's Signature if not the applicant or applicant's authorization if not the owner Kristen A. Hall, Trustee

Owner's Legal Mailing Address 23 Milesfield Ave., Milford, CT 06460

Surveyor Name/Address Slade Associates, Inc., PO Box 592, Wellfleet, MA 02667
(Or Person responsible for preparation of the plan)

File twelve (12) copies each of this form and applicable plan(s) with the Town Clerk

Received of Slade Associates, Inc. regarding Truro Assessors' Atlas Sheet 36, Parcels 39 & 35 (Rogers)

2	Copies of Form B Application For Approval of a Preliminary Plan
2	Copies of letter from the Division of Fisheries & Wildlife
2	Copies of the two lists of abutters
12	Copies of Preliminary Subdivision Plan #2013-111
1	Check in the amount of $275.00

Truro Town Clerk
January 28, 2016

Office of Town Clerk
Treasurer – Tax Collector
JAN 28 2016
Received TOWN OF TRURO
By

Commonwealth of Massachusetts
Division of Fisheries & Wildlife
MassWildlife

Jack Buckley, *Acting Director*

March 27, 2015

Steven Rogers
60 Knobb Hill Road
Milford CT 06460

RE: Project Location: 25 & 25A Pond Road, Truro
Project Description: 9 Lot Residential Subdivision
NHESP File No.: 15-34228

Dear Applicant:

Thank you for submitting the MESA Project Review Checklist, site plans (dated October 3, 2013, revised 11/7/2013) and other required materials to the Natural Heritage and Endangered Species Program of the MA Division of Fisheries & Wildlife (the "Division") for review pursuant to the Massachusetts Endangered Species Act (MESA) (MGL c.131A) and its implementing regulations (321 CMR 10.00).

Based on a review of the information that was provided and the information that is currently contained in our database, the Division has determined that this project, as currently proposed, **will not result in a prohibited "take"** of state-listed rare species. This determination is a final decision of the Division of Fisheries & Wildlife pursuant to 321 CMR 10.18. Any changes to the proposed project or any additional work beyond that shown on the site plans may require an additional filing with the Division pursuant to the MESA. This project may be subject to further review if no physical work is commenced within five years from the date of issuance of this determination, or if there is a change to the project.

Please note that this determination addresses only the matter of state-listed species and their habitats. If you have any questions regarding this letter please contact Emily Holt, Endangered Species Review Assistant, at (508) 389-6385.

Sincerely,

Thomas W. French

Thomas W. French, Ph.D.
Assistant Director

cc: Chester Lay, Slade Associates, Inc.
Truro Conservation Commission

TOWN OF TRURO

ASSESSOR'S OFFICE

P.O. Box 2012, Truro, MA 02666

Tel. 508-349-7004, Ext. 15+16+17 Fax 508-349-5506

Date: 1/26/16

To: Planning Board

From: Assessor's Office

Attached is a list of abutters for the property located at 25A Pond Road on Assessor's Map 36 Parcel 35. The current owner(s) as of 1/26/16 is/are Steven Rogers.

The names and addresses of the abutters are as of 1/26/16 according to the most recent documents received from the Barnstable County Registry of Deeds.

Certified by: Dawn Kopasz

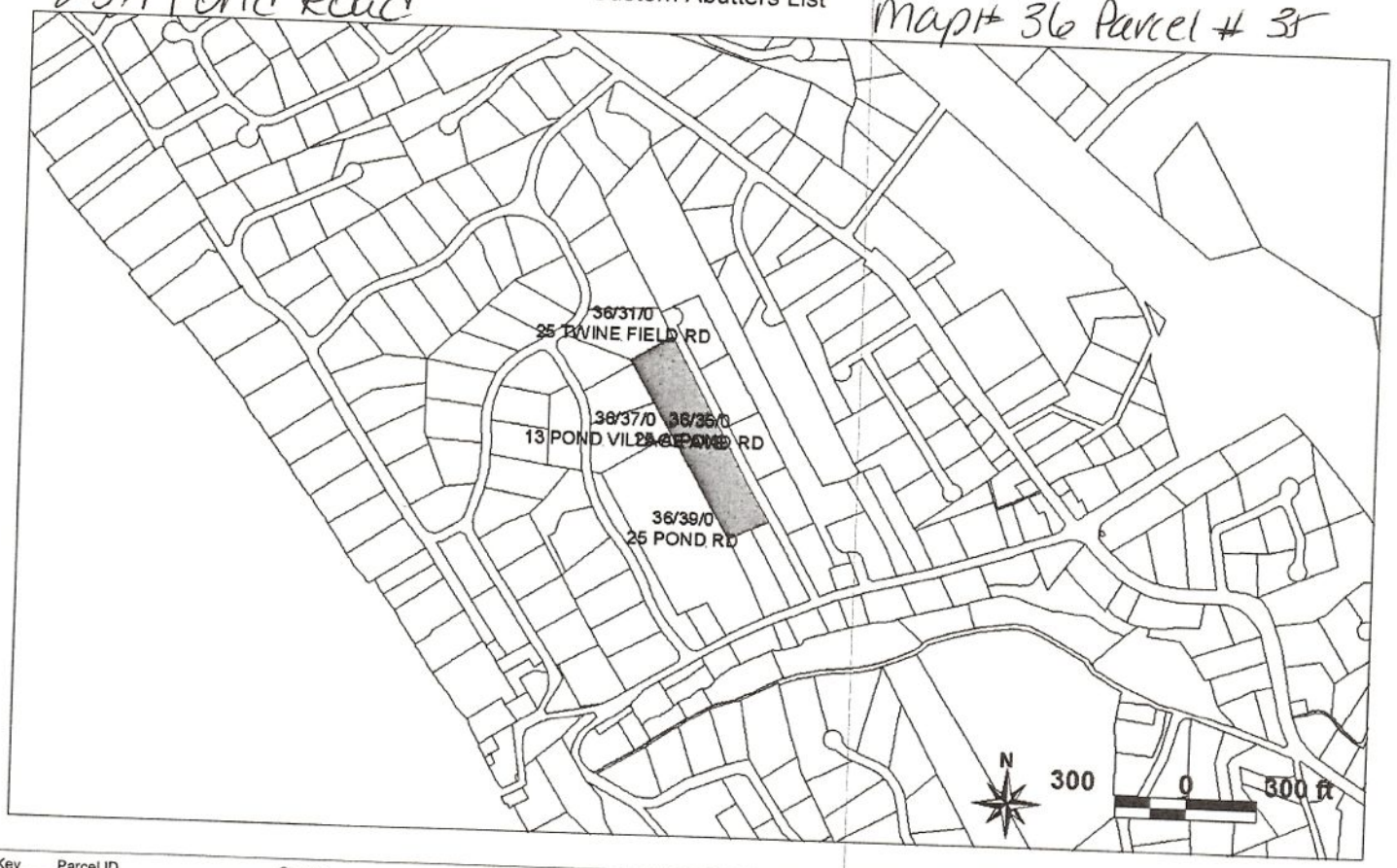
TOWN OF TRURO, MA
BOARD OF ASSESSORS
P.O. BOX 2012, TRURO MA 02666

Planning Board

25A Pond Road

Custom Abutters List

Map# 36 Parcel # 35



Key	Parcel ID	Owner	Location	Mailing Street	Mailing City	ST	ZipCd/Country
928	36-29-0-R	SOUZA CRAIG & DEBRA	27 TWINE FIELD RD	PO BOX 81	NO TRURO	MA	02652-0081
930	36-31-0-R	RASKIN MARVIN RAY REV TR TRS: RASKIN MARVIN RAY	25 TWINE FIELD RD	1336 BALDWIN RD	YORKTOWN HGTS	NY	10598
931	36-32-0-R	MATHEWS JOYCE A	15 PILGRIM POND RD	PO BOX 841	NO TRURO	MA	02652-0841
932	36-33-0-R	TOLMACHYOV VLADISLAV & MAISKAYS-TOLMACHYOV JANE	17 POND VILLAGE AVE	67 OXFORD ST	GLEN RIDGE	NJ	07028-1605
933	36-34-0-R	GAREAU JOSEPH & PAULINE	15 POND VILLAGE AVE	121 INVERNESS DR	BLUFFTON	SC	29910
934	36-35-0-R	ROGERS STEVEN F	25-A POND RD	60 KNOBB HILL RD	MILFORD	CT	06460-7245
936	36-37-0-R	SHRAND HANNAH LIVING TRUST TRS: SHRAND HANNAH	13 POND VILLAGE AVE	PO BOX 336	NO TRURO	MA	02652-0336
937	36-38-0-R	PILGRIM POND RLTY TR II TRS:ENGLISH ELLEN C	7 PILGRIM POND RD	66 TALLYHO LN	LITTLE ROCK	AR	72227
938	36-39-0-R	STEVEN F. ROGERT REV TRUST TRS HALL KRISTIN A	25 POND RD	23 MILESFIELD AVE	MILFORD	CT	06460
940	36-41-0-R	PILGRIM POND RLTY TR II TRS:ENGLISH ELLEN C	21 POND RD	66 TALLYHO LN	LITTLE ROCK	AR	72227
941	36-42-0-R	23 POND ROAD REALTY TRUST TRS: SUNDERLAND DEBRA A	23 POND RD	64 WORCESTER ST	TAUNTON	MA	02780
947	36-48-0-E	TOWN OF TRURO	1 POND VILLAGE AVE	PO BOX 2030	TRURO	MA	02666-2030
948	36-49-0-R	KAZLOUSKAS-NOYES GWEN	27 POND RD	PO BOX 133	NO TRURO	MA	02652-0133
1054	36-168-0-R	REHEISER FAMILY GIFT TRUST TRS: MALLOY GEORGE W	11 PILGRIM POND RD	9 BAYSTATE CT	BREWSTER	MA	02631-2120
1093	36-209-0-R	PILGRIM POND REALTY TR III TRS: ENGLISH ANDREW K	3 PILGRIM POND RD	17 CLUBHOUSE LN	WAYLAND	MA	01778-3801

TOWN OF TRURO

ASSESSOR'S OFFICE

P.O. Box 2012, Truro, MA 02666

Tel. 508-349-7004, Ext. 15+16+17 Fax 508-349-5506

Date: 1-26-2016

To: Planning Board

From: Assessor's Office

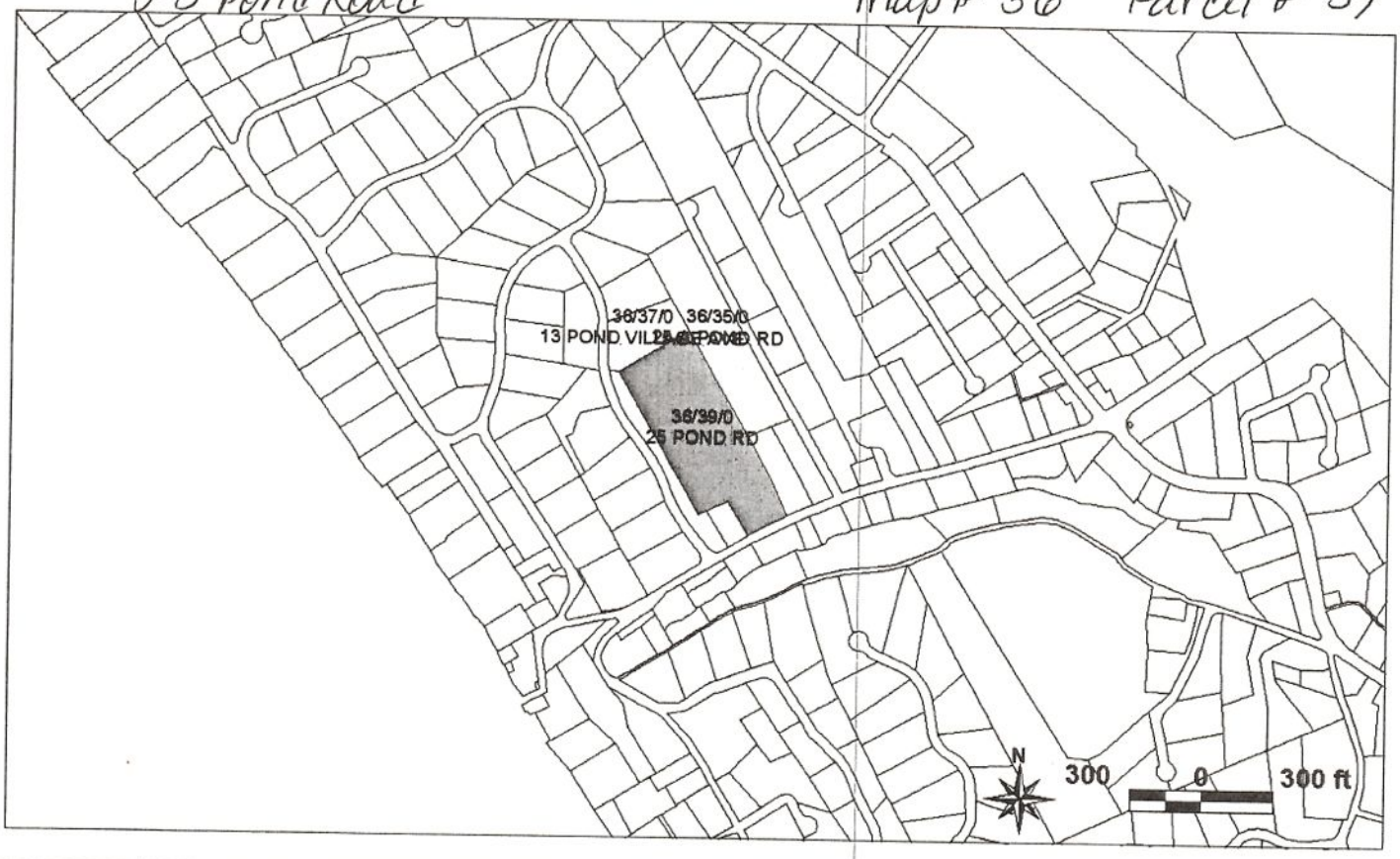
Attached is a list of abutters for the property located at 25 Pond Road on Assessor's Map 36 Parcel 39. The current owner(s) as of 1-26-2016 is/are Steven F. Roger Rev Trust. TRS: Kristin Hall. The names and addresses of the abutters are as of 1-26-2016 according to the most recent documents received from the Barnstable County Registry of Deeds.

Certified by: Dawn Kopasz

TOWN OF TRURO, MA
BOARD OF ASSESSORS
P.O. BOX 2012, TRURO MA 02666

Planning Board

25 Pond Road Custom Abutters List Map # 36 Parcel # 39



Key	Parcel ID	Owner	Location	Mailing Street	Mailing City	ST	ZipCd/Country
933	36-34-0-R	GAREAU JOSEPH & PAULINE	15 POND VILLAGE AVE	121 INVERNESS DR	BLUFFTON	SC	29910
934	36-35-0-R	ROGERS STEVEN F	25-A POND RD	60 KNOBB HILL RD	MILFORD	CT	06460-7245
936	36-37-0-R	SHRAND HANNAH LIVING TRUST TRS: SHRAND HANNAH	13 POND VILLAGE AVE	PO BOX 336	NO TRURO	MA	02652-0336
938	36-39-0-R	STEVEN F. ROGERT REV TRUST TRS HALL KRISTIN A	25 POND RD	23 MILESFIELD AVE	MILFORD	CT	06460
940	36-41-0-R	PILGRIM POND RLTY TR II TRS:ENGLISH ELLEN C	21 POND RD	66 TALLYHO LN	LITTLE ROCK	AR	72227
941	36-42-0-R	23 POND ROAD REALTY TRUST TRS: SUNDERLAND DEBRA A	23 POND RD	64 WORCESTER ST	TAUNTON	MA	02780
947	36-48-0-E	TOWN OF TRURO	1 POND VILLAGE AVE	PO BOX 2030	TRURO	MA	02666-2030
948	36-49-0-R	KAZLOUSKAS-NOYES GWEN	27 POND RD	PO BOX 133	NO TRURO	MA	02652-0133
953	36-56-0-R	HOWARD LILLIAN A LIFE ESTATE RMNDR: KAZLOUSKAS-NOYES GWEN	22 POND RD	PO BOX 133	NO TRURO	MA	02652-0133
954	36-57-0-E	TOWN OF TRURO	0 POND RD	PO BOX 2030	TRURO	MA	02666-2030
955	36-58-0-R	COLEMAN SHEILA A	18 POND RD	19 SHEPARD ST #32	CAMBRIDGE	MA	02138

TOWN OF TRURO
P.O. Box 2030, Truro, MA 02666
Tel: (508) 349-7004 Fax: (508) 349-5505

Memorandum
To: Planning Board
Fr: Carole Ridley
Date: January 29, 2016
Re: 2015-007SPR Michael Tribuna

2015-006SPR Michael A. Tribuna, Trustee, c/o Christopher R. Vaccaro, Esq., seeks approval of an Application for Commercial Development Site Plan Review pursuant to §70.3 of the Truro Zoning By-law for the filling of low area at 7 Parker Drive with related drainage improvements and erosion controls. There will be no new buildings or changes to existing buildings and structures. The property is also shown on Atlas Map 39 Parcel 168 & 169. This application was previously heard on September 8, 2015, October 20, 2015 and December 8, 2015.

On December 8th the Board was presented with a request to allow a withdrawal without prejudice of the above referenced application. To allow withdrawal without prejudice would require a positive motion and vote of the Board. The Board did not make or vote on such a positive motion on December 8th.

The Board voted on a motion to allow withdrawal with prejudice. Withdrawal with prejudice does not require a vote, as an applicant has the right to withdraw with prejudice if notice is given to the Board. However, the applicant had not provided notice of intent to withdraw with prejudice.

Where the Board did not taken action on the applicant's request to withdraw without prejudice, or close or continue the hearing to a date certain, or act on the application, the file remains open.

A letter was sent to Mr. Tribuna through his attorney on December 11th requesting that he provide notice to the Board of his willingness to withdraw with prejudice, or the hearing would be re-opened to continue discussion on possible mitigation. This letter is attached. No response has been received.

Board Action

At the reconvened hearing the Board may consider the following actions:

1. Act on the pending request for withdrawal without prejudice (deny or grant)

In the matter of 2015-006SPR Michael A. Tribuna, Trustee, the Planning Board votes to (deny/approve) the request for withdrawal without prejudice submitted via a letter from Mr. Christopher Vaccaro to Lisa Maria Tobia dated October 20, 2015.

2. If the request for withdrawal without prejudice is denied, the Board should act on the application itself.

If the requested information is forthcoming from the applicant, the Board could consider the information and/or further continue the hearing if necessary, or vote to approve or conditionally approve the site plan review.

Alternately, the Board could to deny the application as follows:

Move not to approve the Application for Commercial Development Site Plan Review for 2015-006SPR Michael A. Tribuna, Trustee, c/o Christopher R. Vaccaro, Esq., pursuant to section 70.3 of the Truro Zoning By-law for the excavation and filling of low area at 7 Parker Drive with related drainage and erosion control measures, where there will be no new buildings or changes to existing buildings and structures. The property is also shown on Atlas Map 39 Parcel 171, based on the finding that (**choose one or more of the following**):

- **The application for site plan approval is incomplete**. This could be justified by the fact that information requested to assess the project's ability to meet the following §70.3.F Site Plan Review Criteria was not provided:

§70.3.F *2.The proposal provides for the protection of abutting properties and the surrounding area from detrimental site characteristics and from adverse impact from excessive noise, dust, smoke, or vibration higher than levels previously experienced from permitted uses.*

§70.3.F *4. The proposal provides for the protection of significant or important natural, historic, or scenic features.*

§70.3.F *5. The building sites shall minimize obstruction of scenic views from publicly accessible locations; minimize tree, vegetation, and soil removal and grade changes; and maximize open space retention.*

§70.3.F *8. The proposed drainage system within the site shall be adequate to handle the run-off resulting from the development. Drainage run-off from the project shall not: damage any existing wellfield(s) or public water supply; damage adjoining property; overload, silt up or contaminate any marsh, swamp, bog, pond, stream, or other body of water; or interfere with the functioning of any vernal pool.*

§70.3.F *9. A soil erosion plan shall adequately protect all steep slopes within the site and control run-off to adjacent properties and streets both during and after construction.*

§70.3.F *10. The proposal shall provide for structural and/ or landscaped screening or buffers for storage areas, loading docks, dumpsters, rooftop or other exposed equipment, parking areas, utility buildings and similar features viewed from street frontages and residentially used or zoned premises.*

§70.3.F *11. Buildings and structures within the subject site shall relate harmoniously to each other in architectural style, site location, and building exits and entrances. Building scale, massing, materials, and detailing should be compatible with the surrounding area*.

The imposition of reasonable conditions will not ensure that the project swill confirm to the standards and criteria described herein. This could be justified by the fact that insufficient information was provided to determine if an adequate mitigation plan could be developed and implemented.

The project does not comply with the requirements of the zoning bylaw. This could be justified by the fact that in that at the time of application, the proposed activity on the subject property was in violation of the zoning bylaw.

Chris Vaccaro <cvaccaro@dfllp.com>

February 12, 2016 12:09 PM

To: Carole Ridley <cr@ridleyandassociates.com>
Cc: Lisa Maria Tobia <lisamariatobia@gmail.com>, Michael Tribuna <mike.hwrt@verizon.net>, Rae Ann Palmer <rpalmer@truro-ma.gov>
RE: 7 Parker Drive, Truro, Mass.

1 Attachment, 166 KB

Carole, you had requested that I furnish additional information for the Planning Board's hearing on February 25, 2016.

I am attaching a copy of my client's building permit, authorizing the demolition of two cottages because he has changed the use from a cottage colony (nonconforming) to single-family (legal and conforming). Please add this to the file.

Given the change of use, we reiterate our request that the Planning Board allow the withdrawal of the site plan approval application without prejudice. Mr. Tribuna would appreciate your consideration of this request, bearing in mind that a refusal by the Planning Board to allow such a withdrawal would be highly unusual and, arguably, both arbitrary and capricious.

Thank you for your attention to this matter.

Chris

Christopher R. Vaccaro
Attorney at Law
Dalton & Finegold, L.L.P.

Direct Dial: 978-269-6425
Email: cvaccaro@dfllp.com
Web Site: www.dfllp.com

From: Carole Ridley [mailto:cr@ridleyandassociates.com]
Sent: Wednesday, February 03, 2016 8:35 PM
To: Chris Vaccaro <cvaccaro@dfllp.com>
Cc: Lisa Maria Tobia <lisamariatobia@gmail.com>; Michael Tribuna <mike.hwrt@verizon.net>; Rae Ann Palmer <rpalmer@truro-ma.gov>
Subject: Re: 7 Parker Drive, Truro, Mass.

Chris-

This is to confirm that the continuance of the Site Plan Review for 7 Parker Drive will occur on Thursday, February 25th at 6 pm at Truro Town Hall. Kindly confirm your receipt of this email on Mr.Tribuna's behalf.

Thanks,
Carole

Ridley & Associates, Inc.
115 Kendrick Road
Harwich, MA 02645
(508) 430 2563 (office)
(508) 221 8941 (cell)
(508) 432 3788 (fax)
www.ridleyandassociates.com

Town of Truro
Building Permit

24 Town Hall Rd, Truro
P: 508-349-7004 x31 F: 5

Building Permit #: 15-321 | Map: 39 | Parcel: 171

Street Location: 7 Parker Dr.

Owner: Michael Tribuna, Westview Court Realty Trust

Type of Work: Change of Use | HIC: n/a

Builder: HO | CSL: n/a

Date of Issue: December 30, 2015

This card shall be posted in a conspicuous place and shall not be covered or removed until all work associated with this permit, is completed. Work s
be in compliance with 780 CMR and all applicable laws and by-laws of the Town of Truro. Approved plans shall be available on the job site. Where a
Certificate of Occupancy is required, the building shall not be occupied until after the final inspection and after the Certificate of Occupancy has been i

BUILDING OFFICIAL:

REQUIRED INSPECTIONS

Footing – Rebar	Electrical Service	Final Gas
Inspector		

TOWN OF TRURO

P.O. Box 2030, Truro, MA 02666
Tel: (508) 349-7004, Ext. 27
Fax: (508) 349-5505
cridley@truro-ma.gov

Via email

December 11, 2015

Mr. Christopher Vaccaro
Dalton & Feingold, LLP
34 Essex Street
Andover, MA 01810

Re: 2015-006SPR 7 Parker Drive, Truro, Michael A. Tribuna, Trustee

Dear Mr. Vaccaro:

I am writing to inform you that on December 8th the Truro Planning Board did not vote to grant your request to withdraw the above referenced application without prejudice.

Please provide notice to the Planning Board of Mr. Tribuna's intent to withdraw with prejudice, or to continue the review of the application. If Mr. Tribuna intends to continue with the review of the application, the Board would be interested in seeing his proposal for site mitigation and to schedule a site visit prior to reconvening the public hearing.

Please respond in writing to this request by close of business, Monday, December 21, 2015. Please contact me if you have any questions.

Sincerely,

Carole Ridley

Carole Ridley
Planning Consultant

Cc: Michael Tribuna
Lisa Maria Tobia, Chair
Rae Ann Palmer

DALTON
& FINEGOLD, L.L.P.
ATTORNEYS AT LAW

Christopher R. Vaccaro
Direct Line: 978-269-6425
Email: cvaccaro@dfllp.com

34 Essex Street
Andover, Massachusetts 01810
Telephone: 978-470-8400
Telecopier: 978-470-8338

October 20, 2015

BY EMAIL

Ms. Lisa Maria Tobia, Chair
Truro Planning Board
Truro Town Hall
P.O. Box 2030
24 Town Hall Road
Truro, Massachusetts 02666

Re: Michael A. Tribuna Jr., Trustee of Westview Court Realty Trust
7 Parker Drive, Truro, Massachusetts (Map / Parcel No. 39 / 171)
Planning Board Case No. 2015-006SPR

Dear Ms. Tobia:

This office represents Michael A. Tribuna Jr., Trustee of Westview Court in connection with the above-referenced site plan approval application.

Mr. Tribuna is changing his property from a cottage colony into single-family use. We expect the change of use to take place on or about November 1, when current leases on the property expire. The change of use will render site plan approval unnecessary for 7 Parker Drive. Accordingly, Mr. Tribuna respectfully requests that the Planning Board consent to the withdrawal of his site plan approval application without prejudice.

Thank you for your consideration in this matter.

Very truly yours,

Christopher R. Vaccaro

cc: Mr. Michael A. Tribuna Jr. (by email)
Mr. Daniel A. Ojala, P.E. (by email)

Tru-Haven Homeowners' Association
P.O. Box 537
Truro, MA 02666

January 30, 2016 **Via Email**

Ms. Lisa Maria Tobia
Chairman
Truro Planning Board
Truro, MA

Re: 7 Parker Drive

Dear Chairman Tobia,

I just learned from Ms. Ridley that the Planning Board must reopen the hearing with regard to the site plan for 7 Parker Drive. She also quite kindly copied me on her memorandum to the Board outlining options for this week's vote. While I am sorry that the Board must, once again, spend its time on this matter which has already proven so time consuming and frustrating, I do appreciate the opportunity to express our community's concerns and view regarding how this matter is finally resolved with the Planning Board. Unfortunately, I cannot attend this week's meeting as I am currently out of town but am sending this note which I hope you will share with the other members of the Planning Board.

We believe that the Planning Board's final determination on the site plan for this property should reflect the concerns expressed by its members over the past several months during which it repeatedly endeavored to devise a compromise solution for all concerned and to grant continuances when information supplied by the applicant continued to remain incomplete. While there may indeed be a loop-hole in zoning regulations that was revealed through this process, the facts are that the property was and remains in violation of zoning laws; and that the application for a change of use for this property was an end-run of the intent of the Town's bylaws since, by the applicant's own representations, it was pursued to avoid an expected order of mitigation.

We believe that allowing the applicant to simply withdraw his application without prejudice would be particularly inappropriate in this instance and, further, that doing so would create a terrible precedent for future applications by others. Simply put, such a waste of Town personnel and volunteer resources, and what appears to be a gaming of the system should not be encouraged or condoned.

Ms. Ridley outlines three reasons why the application itself can be denied along with reasons why

each of these may be true. We believe that her analysis is correct and that **all** reasons given are applicable and should be reflected in the final record. Further, we believe that such a finding may help inform future decisions on this property by other Town boards which may be unaware of the history on this application.

I therefore respectfully request that the members of the Planning Board:

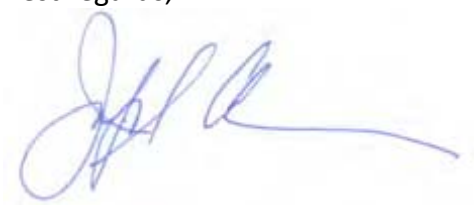
1) Vote to deny the applicant's motion to withdraw without prejudice.
2) Vote to deny the application citing all three reasons offered:
    a. The application for site plan approval remains incomplete
    b. The imposition of reasonable conditions will not ensure that the project will conform to the standards and criteria described herein.
    c. The project does not comply with the requirements of the zoning bylaw

For your information, Mr. Tribuna received a building permit for change of use on December 30. This permit was appealed last week due to concerns about possible hazard to the road and other issues. Some of these were actually points of concern expressed by Town officials and others during the commercial site plan review including drainage which, under the current building permit, would not need to be addressed at all. Our community is now simply trying to have the permit modified to add certain conditions to offer needed protections against what we believe will be substantially increased detriment to our neighborhood. I have been informed that it is being placed on the March ZBA agenda.

We believe having a clear record expressing the Board's concerns as suggested by a vote to deny the application based on all there reasons outlined above and in Ms. Ridley's memo will also be helpful in alerting the ZBA of the larger picture involved in this matter. While they will certainly reach their own, independent decision, I do believe that they should be informed of previous concerns as possible.

Thanks to you and to each member of the Board who has given such careful attention to this matter since last July.

Best regards,



Jennifer Cohen, President

TOWN OF TRURO

Office of Town Clerk
Treasurer – Tax Collector
MAR – 8 2016
#25.00 fee paid
Received TOWN OF TRURO
By Susan S Joseph

PLANNING BOARD

RECEIVED
SELECTMENS OFFICE
MAR 07 2016
TOWN OF TRURO
MASSACHUSETTS

Application for Temporary Sign Permit

Pursuant to Section 11 of the Truro Sign Code
Fee: $25.00

Applicant Name: Payomet Performing Arts Center **Date:** 3/7/16

Applicant Contact Information: (Kevin Rice) PO Box 1202, Truro, MA 02666
Mailing Address

508: 349 2929 info@payomet.org
Phone Email

Number of Signs Requested: 2

Temporary Sign Dimensions: Height 48" Width 36" **Please attach a "to scale" copy of the proposed sign(s).**

Location(s) of Proposed Temporary Sign(s): Rte 6, North of Noons Rd and Rte 6, South of So. Highland Rd

Map(s): 39 **Parcel(s):** 166 **Please use additional sheet(s) for multiple locations**

Date(s) of the Event in Which the Sign is Intended: Season

Date When Sign(s) will be: Installed: 3/16/16 Removed: 4/15/16

Name and Address of Property Owner(s) Where Temporary Sign(s) to be located:

Mike Winkler, PO Box 1110 Truro, MA 02666
Name Mailing Address

MASS State ROW
Phone Email

Applicant Signature _____ Date 3/7/16

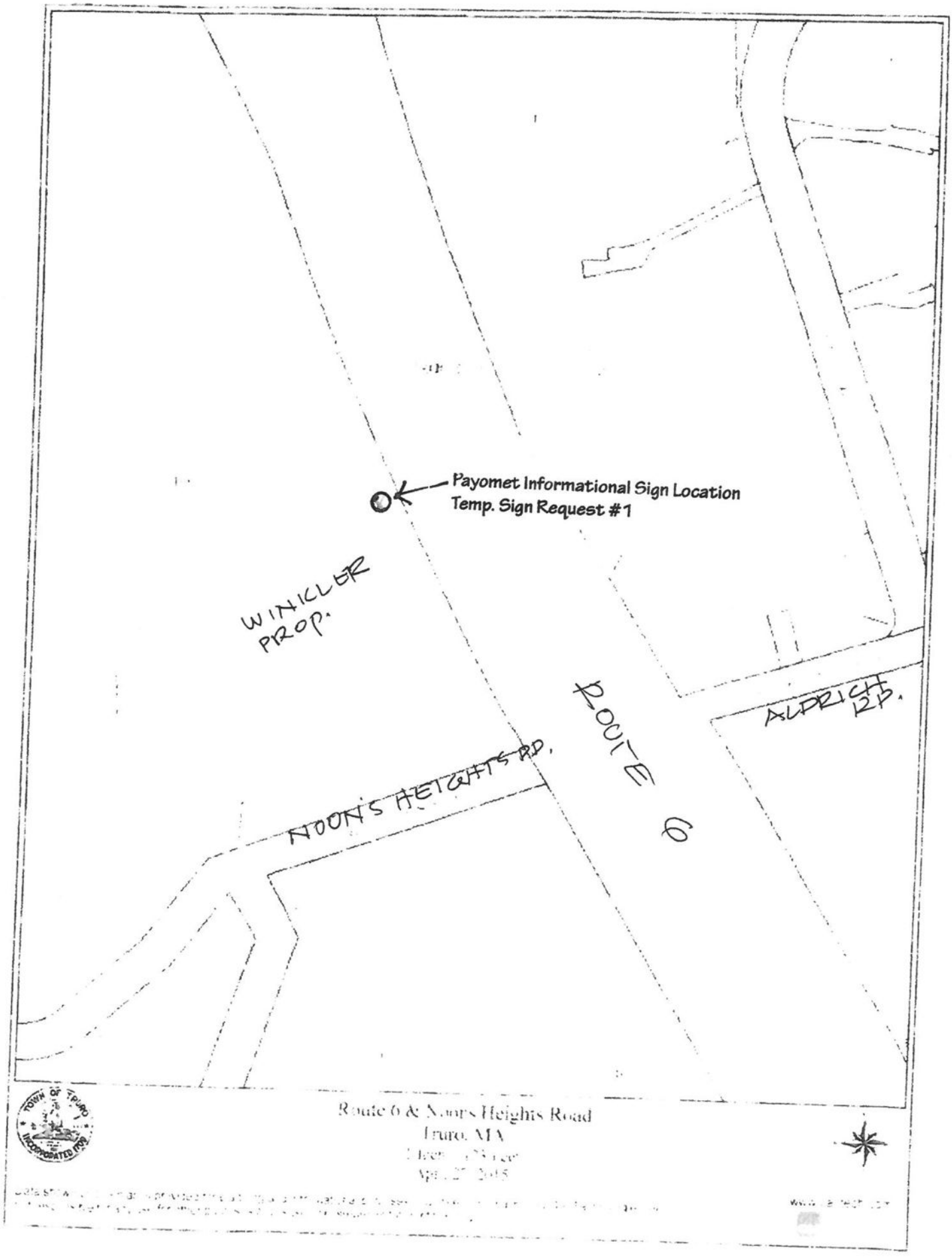
Owner Signature (which also authorizes the use of the property) _____ Date _____

Planning Board Action: **Approved** ____ **Approved w/Conditions** ____ **Denied** ____

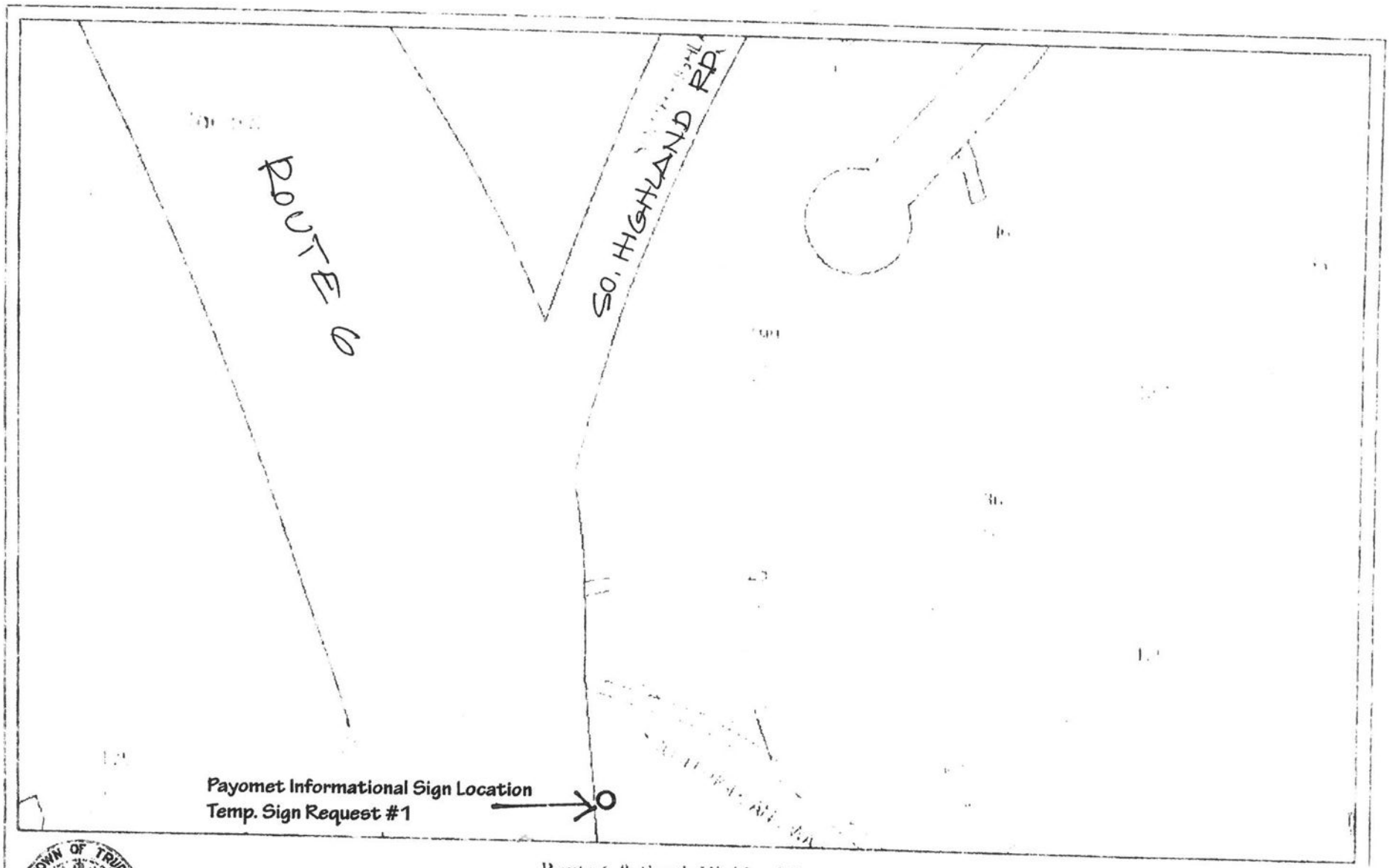
Conditions: _____

Board Signature: _____ Date: _____
Title

CC: Building Commissioner, Board of Selectmen



Route 6 & Noons Heights Road
Truro, MA
Sheet 1 of 1
April 27, 2015

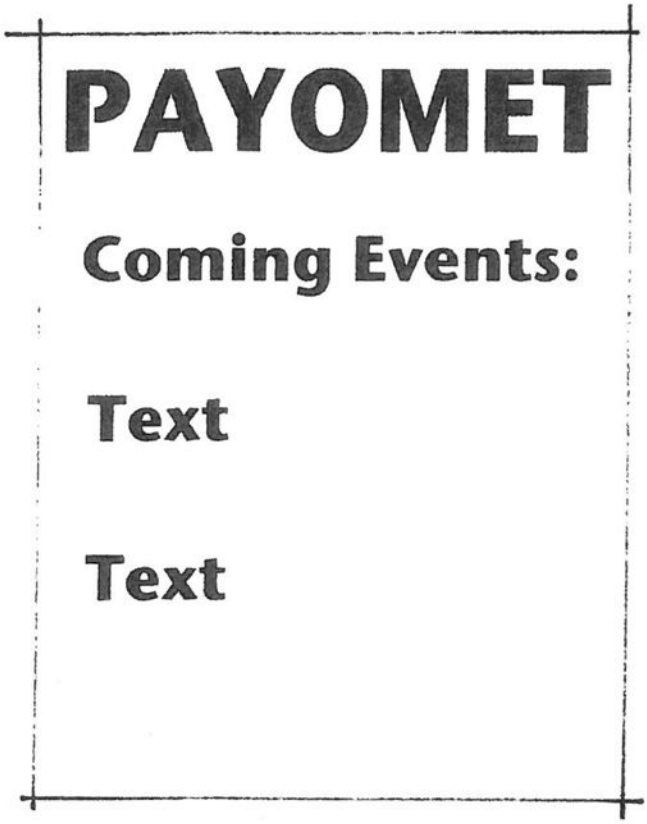


TOWN OF TRURO
INCORPORATED 1709

Route 6 & South Highland Road
Truro, MA

1 Inch = 104 Feet
April 27, 2015

www.cai-tech.com



Two-sided signs
Two locations
Scale: 1" = 1' - 0"

Payomet Performing Arts Center, Truro

TRURO PLANNING BOARD **DRAFT**
Meeting Minutes
February 25, 2016 - 6:00 pm
Truro Town Hall

Planning Board Members Present: Bruce Boleyn; John Riemer; Michael Roderick; Peter Herridge; and John Hopkins
Members Absent: Lisa Maria Tobia; Steve Sollog (excused)
Other Participants: Regan McCarthy, TNRTA; Robert Weinstein; Paul Kiernan; Chet Lay, Slade Associates; Tom Cebula, Dorchester Awning Company; Chris Lucy; Ben Zendher; Maureen Burgess; Carole Ridley, Planning Consultant

Mr. Boleyn opened the meeting at 6:02 p.m. and had the Planning Board members introduced themselves and then opened the Public Hearings.

Public Hearing: Growth Management Bylaw Extension
Copies of the proposed bylaw extension were available at the meeting. Ms. Ridley explained the background to the bylaw and the fact that it would expire in 2016, as it was only a ten (10) year bylaw. After review and study by the Planning Board and Town Counsel, the Planning Board is recommending a five (5) year extension of this bylaw.

Mr. Boleyn asked for public comment. Regan McCarthy asked for clarification on rollover of building permits and if condominiums were subject to this bylaw. Rollover of building permits under this bylaw would be on a first come-first served basis and condominiums are not considered single family units.

Mr. Riemer pointed out that this bylaw does not address the issue of affordable housing units, even though if a home built is deemed affordable, it does not count towards the cap of 40 units. Ms. Ridley suggested that the Board could look at this under inclusionary zoning at some future point.

On a motion by Mr. Boleyn and seconded by Mr. Hopkins, the public hearing was closed, so voted 5-0-0.

On a motion by Mr. Herridge and seconded by Mr. Hopkins, the Board voted to authorize Ms. Ridley write a report of the public hearing and comments and submit it to the Board of Selectmen for inclusion in the Town Warrant, so voted 5-0-0.

Public Hearing: Adoption of Rule under Adoption of MGL c. 44 §53g for Subdivision Regulation
Ms. Ridley provided a summary of the purpose of this rule and indicated that copies of this were also available at the meeting. This rule is a regulation change so it would be incorporated into the town's rules and regulations for subdivisions.

Bob Weinstein came forward to speak as an individual and raised the issue that this will increase the costs for anyone to build and the negative impact it may have on increasing the inventory of affordable housing in Truro.

Paul Kiernan came forward in support of this based on his past experience as a Planning Board member. He also pointed out that this is a part of the tool kit and not a mandatory requirement for every site plan review.

Regan McCarthy came forward and raised the question that this regulation may have the applicant pay for the expertise when it is adversarial for them as well as the appeal process being through the Board of Selectmen. Ms. Ridley clarified that this is guided by statute.

Bob Weinstein asked of Ms. Ridley the specific citation for the Board of Selectmen as an appeal process. She will refer to Town Counsel.

On a motion by Mr. Herridge and seconded by Mr. Hopkins, the public hearing was closed, so voted 5-0-0.

Mr. Hopkins is in favor of this regulation as he sees it as a proactive measure to deal with future potential development concerns, particularly in the Beach Point area. His only concern is about the negotiation aspect in the regulation.

Mr. Riemer is also in support of this because it helps to serve the best interests of the town.

On a motion by Mr. Hopkins and seconded by Mr. Herridge, the Board voted to adopt MGL c. 44 §53g for Subdivision Regulation with the removal of the words "to negotiate the payment of consultant fees", so voted 5-0-0.

Public Comment Period:

The Commonwealth's Open Meeting Law limits any discussion by members of the Board of an issue raised to whether that issue should be placed on a future agenda.

Paul Kiernan came forward to address a deficiency in the bylaws. He stated this is the eighth time he is bringing this issue up. He asked that the street definition issue be addressed.

Definitive Subdivision Plan Endorsement and Acceptance of Covenant

2015-012PB Irving Ziller seeks endorsement of a Definitive Plan approved by the Board on December 22, 2015 and following the expiration of a 20-day appeal period (no appeals were filed). The subject property is known and numbered as 1 & 1A Quail Ridge Way, Truro and shown as Parcels 27 & 28 on Truro Assessor's Map, Sheet 43. A covenant is proposed for acceptance.

Ms. Ridley reviewed the decision of the Board made on December 22, 2015 and the conditions. A condition of the approval was for the applicant to meet with the Building Commissioner to determine whether the turning (curb) radii for Ziller Path where it meets

Quail Ridge Way is compliant with the Truro Zoning Bylaw and, if not, to amend the plan to be compliant in this regard. The applicant met with the Building Commissioner who indicated that he interprets the measurement of the curb radii as from the edge of the travelled way and not the roadway layout. As measured from the traveled way, the radii meet the 20-foot requirement.

The portion of the covenant was read into the record that Ziller Path will only provide road frontage for Parcel D only.

On a motion by Mr. Hopkins and seconded by Mr. Roderick, the Board voted to accept Form D Covenant for 2015-012PB Irving Ziller Definitive Plan reflecting the terms of the conditional approval decision and the waivers granted for the Definitive Plan filed with the Town Clerk on January 20, 2016 and endorse the plan, so voted 4-1-0 (Mr. Riemer opposed).

Preliminary Subdivision- Continued

2015-010 Rose L. D'Arezzo, Charles S. Hutchings, et al seeks approval of a 5-lot preliminary subdivision pursuant to MGL c.41, Section 81-S and Section 2.4 of the Town of Truro Rules and Regulations Governing the Subdivision of Land for property located at 4H Bay View Road and a portion of 3 Laura's Way, Assessors Map 39, Parcels 77 & a portion of 325. This matter was continued from December 8, 2015.

The applicant has submitted a letter requesting a withdrawal of the application without prejudice. On a motion by Mr. Roderick and seconded by Mr. Hopkins, the Board voted to accept a withdrawal of 2015-00 Rose L. D'Arezzo, Charles S. Hutchings et al application for a 5-lot subdivision without prejudice, so voted 5-0-0.

Waiver of Site Plan Review

2016-002SPR Dorchester Awning c/o Thomas Cebula seeks a waiver of Site Plan Review for installation of a seasonal canopy covering a portion of a patio at Captain's Choice Restaurant, 4 Highland Road, Map 36, Parcel 93-D.

Mr. Roderick recused himself and left the panel.

Tom Cebula reviewed the construction of the awning and stated it will be seasonal with no change in seating plan and the showed the location of trash and recycling. The framing will be permanent but the fabric will be removable.

Mr. Hopkins asked if the footings would meet the setbacks from the lot line. This will need to be clarified as to where the structure will be located with regard to the setbacks.

Mr. Riemer stated he spoke with Lisa Maria Tobia by telephone and would like to propose that this matter be continued pending a site visit.

On a motion by Mr. Riemer and seconded by Mr. Herridge, the site plan review was continued until March 15, 2016 and a site visit will be scheduled in the interim, so voted 5-0-0.

Commercial Site Plan Review, Continued

2015-006SPR Michael A. Tribuna, Trustee, c/o Christopher R. Vaccaro, Esq., seeks approval of an Application for Commercial Development Site Plan Review pursuant to §70.3 of the Truro Zoning By-law for the filling of low area at 7 Parker Drive with related drainage improvements and erosion controls. There will be no new buildings or changes to existing buildings and structures. The property is also shown on Atlas Map 39 Parcel 168 & 169. This application was previously heard on September 8, 2015 and December 8, 2015. The application was re-advertised for hearing on February 2, 2016 and on request of the applicant was continued to February 25, 2016.
Mr. Boleyn opened the hearing.

Ms. Ridley reported that the four (4) Planning Board members originally involved in this matter, Ms. Tobia, Mr. Sollog, Mr. Riemer and Mr. Boleyn would all need to be present for any decisions.

On a motion by Mr. Herridge and seconded by Mr. Roderick, the commercial site plan review was continued to March 15, 2016, so voted 5-0-0.

The hearing was then closed.

Continued Discussion on Possible Zoning Articles and Scheduling of Public Hearings

- Accessory Dwelling Unit Bylaw

Ms. Ridley reported on the three sections of the bylaw along with the proposed changes to accomplish what the Board has previously discussed, which is to encourage the use of the accessory dwelling bylaw for the creation of affordable apartments. The specifics were provided in the packet. The public hearing is scheduled for March 15, 2016 and the draft has been sent to Town Counsel for review. A point for consideration is that these units could not be used for a seasonal rental and what "seasonal" constitutes would need further discussion.

Mr. Riemer expressed his concern that the removal of the word "affordable" from the proposed wording of the accessory dwelling unit bylaw does not address meeting Truro's need for affordable housing. Ms. Ridley clarified that all districts would be included, including the Seashore district, partly to correct some inconsistencies in the current bylaw. Mr. Riemer expressed his concern about the possibility that the character of the Seashore district may be adversely affected.

Chris Lucy came forward and stated that the proposed bylaw is a good start but he is concerned about the omission of condominiums as a year round option for affordable housing. He also feels that the benefits to owners renting a unit year round as opposed to weekly needs to be clear.

Ben Zendher came forward and stated he feels that the Seashore district should be excluded, that there should be a by-right permit and there needs to be an affordability component.

Maureen Burgess, speaking as a citizen, expressed her concern about allowing accessory dwellings within the Seashore district, as there is some current work being done on restricting the size of houses within Seashore district.

Mr. Riemer asked if the accessory dwelling might impact the way in which the affordable housing units within a town is calculated, that is, if having additional accessory units increases the number of housing units upon which the formula is applied. Ms. Ridley is to investigate this further.

Mr. Hopkins raised the issue of septic loading issue with the accessory units.

Review and Approval of Meeting Minutes

January 28, 2016 Seamen's Bank Onsite

On a motion by Mr. Boleyn and seconded by Mr. Hopkins, the minutes were approved with a minor typographical correction, so voted 5-0-0.

February 2, 2016 Planning Board Meeting

On a motion by Mr. Boleyn and seconded by Mr. Herridge, the minutes were approved as written, so voted 5-0-0.

Reports from Board Members and Staff

Ms. Ridley reminded Board members of the following meeting and other important dates:

- Annual Town Meeting Warrant closes March 8, 2016
- March 15, 2016 – Reg. Meeting
- March 29, 2016 – Reg. Meeting
- April 12, 2016 – proposed 3 pm Work Shop with Town Counsel and Planning Board Meeting at 6:00 pm.
- April 26, 2016 - Annual Town Meeting

On a motion by Mr. Herridge and seconded by Mr. Hopkins, the meeting was adjourned, so voted 5-0-0.

Respectfully submitted,

Shawn Grunwald
Recording Secretary

TRURO PLANNING BOARD **DRAFT**
Meeting Minutes
March 7, 2015 – 10:00 am
4 Highland Road, Truro

Planning Board Members Present: Steve Sollog, Lisa Maria Tobia, John Riemer, Bruce Boleyn
For the applicant: Chris King, Owner
Members Absent: Peter Herridge, John Hopkins, Michael Roderick (recused)

The brief site visit took place to view the property seeking waiver of site plan review to install a seasonal canopy. The owner oriented members to the proposed location of the canopy on the property. The site visit concluded at approximately 2:15 pm.

Memorandum

To: Rae Ann Palmer
Fr: Carole Ridley, Planning Consultant
Date: March 4, 2016
Re: Zoning Amendment for Annual Town Meeting

On February 25th the Planning Board voted to forward the attached proposed amendment to § 40.6 of the zoning bylaw to the Board of Selectmen for inclusion on the 2016 Annual Town Meeting Warrant.

The proposed amendment extends the period of § 40.6 *Growth Management* by five years. Without the proposed amendment, the Growth Management provision would expire at the end of this calendar year.

The bylaw caps the issuance of single-family building permits at forty per year, with no more than six permits to be issued in a given month. The cap does not apply to single-family dwellings that are affordable, destroyed by fire, or rebuilt within 125% of original footprint. The proposed modifications do not alter these terms.

The number of building permits issues annually since 2006 has not yet met the cap. The Planning Board has noted that the slower than expected pace of single-family residential development may have been due to broader economic forces related to the 2008 recession. As the economy continues to improve, it is reasonable to anticipate increased development interest and activity. The five-year extension of the bylaw is proposed as a reasonable means of providing time for community planning for land use, infrastructure, services and resource protection that will not unreasonably limit opportunities for residential growth in the community.

A public hearing on the proposed amendment was duly advertised in the Provincetown Banner on February 11th and 18th and was held on February 25th at Truro Town Hall. Two clarifying questions were raised in testimony. The first question was, is any building permit allocation that rolls over into the next calendar year pursuant to section 40.6.B.1 distributed on a first come first serve bases? The answer is, yes, permits for any outstanding allocation are administered in accordance with 40.6.B.2. The second question was, does the building permit cap apply to the conversion of condominium units? The conversion of condominiums is handled under a separate section of the bylaw, however the construction of a new condominium unit that met the definition of single-family dwelling would fall under the building permit cap. Comments regarding the need for measures to encourage the development of more affordable housing units also were provided.

ARTICLE XX: AMEND § 40.6 GROWTH MANAGEMENT WITHIN THE TRURO ZONING BYLAW

To see if the Town will amend the Truro Zoning Bylaw § 40.6 Growth Management, by removing the language shown below with a strikethrough and adding the language shown below with an underline, for the purpose of extending the time period of § 40.6 by five years.

§ 40.6. Growth Management

A. Purpose. The purpose of § 40.6 of the bylaw is to provide adequate time for the Town to plan and prepare for the effects of future residential growth, and ensure that ~~control~~ the pace of ~~the Town's~~ growth does not diminish the Town's rural character, impair natural resources or overwhelm town services or infrastructure. ~~so that build-out will be gradual.~~ The~~is~~ gradual pace of development afforded by the bylaw will provide opportunities for the Town to: 1) ~~an opportunity to~~ purchase and protect open spaces, thereby reducing the Town's ultimate density and preserving, as much as possible, the Town's rural character; 2) undertake comprehensive planning to ~~the time for the Town to adequately~~ identify a community land use vision to guide the regulation of land use and development; 3)~~study~~ assess the impacts of anticipated growth on town infrastructure, roads, drinking water supply and fresh and marine wetlands and water bodies, and plan appropriate measures to protect the integrity of those resources~~, and possibly regulate the impact of continued development on the Town's existing roads and water quality~~; and 4~~3~~) develop a financially sustainable plan for the provision of town services and infrastructure necessary to support the community's land use vision. ~~protection for the Town from a sharp acceleration of population growth that could suddenly overwhelm our current public services~~. This section, § 40.6, shall expire on December 31, 2021~~16~~.

B. Residential Development Limitation.

1. There shall be no more than forty (40) building permits for new single family dwelling units authorized within any calendar year, beginning January 1 and ending December 31. Permits not issued within the calendar year may be carried over and added to the next calendar year's quantity. This bylaw shall be effective as of March 3, 2006.
2. The Building Commissioner shall issue building permits in accordance with the following:
    a. For the purposes of this section, an application shall be accepted for review only if it conforms to all applicable building and zoning requirements, and has received all necessary approvals from pertinent Town boards, including the Board of Health, Planning Board, Board of Appeals, Conservation Commission, and so forth.
    b. Applications for building permits for single family dwelling units certified complete by the Building Commissioner shall be dated and time-stamped upon determination of completeness. Building permits shall be issued on a first-come/first-served basis.
    c. Within any calendar month, no more than six (6) permits for single family dwelling units may be issued. Permits not issued during one month may be carried forward and issued the next month, assuming it is within the same calendar year.
    d. No applicant may have more than one (1) application processed for a single family dwelling unit in any given month.

e. No more than four (4) building permits for single family dwelling units shall be issued to any one applicant within a single calendar year unless 1) there are available permits within the yearly limit and 2) no other applicant has applied for them before the fifteenth day of December.

C. Exemptions.

1. Construction of affordable housing units provided such housing units have deed restrictions to ensure they remain affordable for the maximum period permitted under Massachusetts law. Occupancy permits for such affordable units are not to be issued until the restricted deed has been recorded or registered.

2. A presently existing structure which is otherwise subject to this bylaw but which is destroyed by fire or other calamity. Such a structure may be rebuilt outside of these limitations as long as: 1) the structure is not expanded beyond one additional bedroom; 2) it complies with all other provisions of these bylaws; and 3) so long as application for a building permits is submitted within two (2) years of the destruction.

3. A presently existing structure which, following demolition, is being rebuilt to no more than one hundred twenty-five percent (125%) of its current footprint. Such a structure may be rebuilt so long as: 1) the structure is not expanded beyond one additional bedroom; 2) it complies with all other provisions of these bylaws; and 3) the application for a building permit is submitted within two (2) years of the existing structure's demolition. (4/16)

Comment: The purpose of this proposed change is to extend the time period of the Growth Management bylaw, which caps single-family residential building permits at 20 per year. Affordable housing units are exempt from this building permit cap. The annual cap on permits ensures that the rate of residential growth does not outpace the Town's ability to provide services and infrastructure, and to put in place measures to protect the community's rural character and natural resources. The additional five years will allow time to complete comprehensive community-based planning for land use, water resource protection, infrastructure and services.

TOWN OF TRURO
PLANNING BOARD
NOTICE OF PUBLIC HEARING

The Truro Planning Board will hold a public hearing at 6:00 p.m. on Tuesday, March 29, 2016 at the Truro Town Hall located at 24 Town Hall Road, Truro to take comments on the following proposed modifications to the Town of Truro Zoning Bylaws to amend the current Definition of "STREET" within the Zoning Bylaw to include the actual requirements of the Town of Truro Subdivision Regulations, Section IV, Design Standards, (b), (c), & (d) as they existed on January 1, 1989. The proposed language follows with new text underlined:

Street. A public or private way which affords access to abutting property. For the purposes of this bylaw, the terms "street", "road", "way", and "road right-of-way" bear the same meaning. When a street(s) is to be used for lot frontage, the street(s) shall conform to the requirements of the Town of Truro Subdivision Regulations, Section IV, Design Standards, (b), (c), & (d) as they existed on January 1, 1989.

The aforementioned 1989 Design Standards are: b) The minimum width of street right-of-ways shall be 40 feet, c) Property lines at street intersections shall be rounded to provide for a curb radius of not less than 20 feet, and d) Dead-end streets shall be provided at the closed end with a turnaround having a property line diameter of at least 80 feet. When ways requiring turnarounds may be extended in future subdivision, the Board may require only an area equal to the above requirement to be shown and marked "Reserved For Turning". Upon extension of the way through this turning area, the portions not included in the way shall revert to their respective lots.

Street(s) shall have a center line length in excess of 100 feet. For dead-end street(s), this distance shall be measured from the sideline of the layout of the road to be intersected to the opposite end of the layout of the turnaround cul-de-sac. Town of Truro paved street(s) that: (1) have a minimum layout width of 20 feet, (2) were created prior to January 1, 1989 and (3) were accepted by Truro Town Meeting, are exempt from the width requirements of the Town of Truro Subdivision Regulations, Section IV, Design Standards. These accepted public paved ways shall be deemed adequate as lot frontage for the issuance of building permits. The list of accepted Truro public paved ways is available from the Town of Truro Town Clerk upon request.

Lisa Maria Tobia, Chair
Truro Planning Board
March 17 and March 24, 2016